अभ्यास-पुस्तिका

स्वस्ति — प्रथमो भागः

डॉ० कमलाकान्त मिश्र
श्रीमती उर्मिल खुंगर

राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
National Council of Educational Research and Training

प्रस्तावना

संस्कृतस्य महत्त्वमुद्दिश्य विद्यालये संस्कृतशिक्षणाय उपयुक्तपाठ्यक्रमपाठ्यपुस्तकादिविकासक्रमे प्रारम्भिककक्षाभ्यः राष्ट्रियमेकं चतुर्वर्षीयम् आदर्शं पाठ्यक्रमं निर्माय राष्ट्रियशैक्षिकानुसन्धानप्रशिक्षणपरिषदः सामाजिकविज्ञानमानविकीशिक्षाविभागेन स्वस्तिनामकं चतुर्भागात्मकं संस्कृतपाठ्यपुस्तकं प्रणीतं यत् छात्रेषु संस्कृतभाषाज्ञानेन सह नैतिकविकासायोपकारकं भवेदिति ध्येयम् ।

पाठ्यपुस्तके पठितभाषातत्त्वानां सम्यगभ्यासाय विषयवस्तुनः सुकराधिगमाय च **अभ्यासपुस्तिका** निर्माणक्रमे प्रस्तूयते **प्रथमोऽयं भागः**। प्रयासोऽयं कियान् सफलः इति अनुभवसम्पन्नैः अध्यापकैरेव निर्णेष्यते ।

पुस्तिकायाः अस्याः पाण्डुलिपिनिर्माणतत्समीक्षणसंशोधनप्रकाशनादिविविधकार्येषु कृतश्रमः विभागस्य संस्कृतप्रवाचकः डॉ० कमलाकान्तमिश्रः प्रभूतं साधुवादार्हः। कार्येऽस्मिन् सहयोगाय खूंगरोपाधि-युक्ता श्रीमती उर्मिलाख्या प्रसादोपाधियुक्ता डॉ० कु० स्नेहलता च अस्माकं धन्यवादमर्हतः। पाण्डु-लिपिसमीक्षणसंशोधनार्थमायोजितकार्यगोष्ठ्यामुपस्थाय ये संस्कृताध्यापकाः विषयविशेषज्ञाः बहुमूल्यं परामर्शादिकं प्रदत्तवन्तः, तान् प्रति परिषदियं स्वकृतज्ञतां प्रकटयति । पुस्तिकेयं छात्रेभ्यः उपयुक्ततरा भवेदेतदर्थम् अनुभविनामध्यापकानां विशेषज्ञानाञ्च परामर्शाः अस्माकं स्वागतार्हाः भवेयुः ।

शिवकुमारमित्रः
निदेशकः
राष्ट्रियशैक्षिकानुसन्धानप्रशिक्षणपरिषद्

नवदेहली
31-12-81

विषय-सूची

प्रथमः अभ्यासः

दिनांक ....

उद्देश्य—अकारान्त पुलिंग शब्द और वर्तमान काल में प्रथम पुरुष के एकवचन व बहुवचन के क्रियापद के रूपों का ज्ञान कराना।

1. **अनुवाद करो—**

संस्कृत	हिन्दी	
क. रामः पठति।	राम पढ़ता है।	(उदाहरण)
ख. श्यामः लिखति।	....	
ग. बालकाः पठन्ति।	....	
घ. ते लिखन्ति।	....	
ङ. सः पठति।	....	
च. नराः धावन्ति।	....	

छ. अश्वः धावति । ....

ज. नराः चलन्ति । ....

(अध्यापक द्वारा रेखांकित अशुद्ध पदों एवं वाक्यों के संशोधन हेतु स्थान)

संशोधन ....

....

2. **रिक्त स्थान भरो—**

क. सः पठति । (उदाहरण)

ख. नराः .... ।

ग. सः .... ।

घ. बालकः .... ।

ङ. .... लिखन्ति ।

च. .... लिखति ।

छ. अश्वः .... ।

ज. .... चलन्ति ।

संशोधन ....

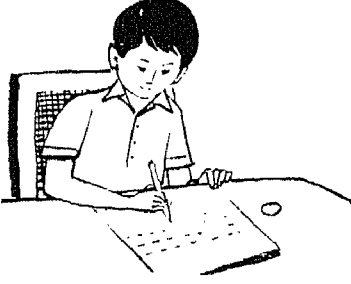
....

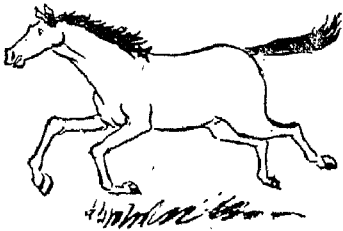
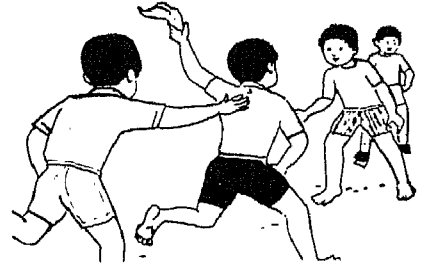
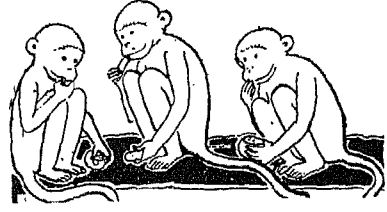
3. **संस्कृत में अनुवाद करो—**

हिन्दी	संस्कृत
क. मोहन पढ़ता है।	**मोहनः पठति ।** (उदाहरण)
ख. लड़के लिखते हैं।	....
ग. वह पढ़ता है।	....
घ. वे लिखते हैं।	....
ङ. घोड़ा दौड़ता है।	....
च. लड़के दौड़ते हैं।	....

संशोधन ....

....

4. चित्रों की सहायता से निम्नलिखित रिक्त स्थान भरो—

क. बालक: .... ।

ख. .... खेलन्ति ।

ग. अश्व: .... ।

द्वितीयः अभ्यासः

दिनांक ....

उद्देश्य—आकारान्त स्त्रीलिंग शब्दों के एकवचन तथा बहुवचन का ज्ञान कराना।

1. **अनुवाद करो—**

संस्कृत	हिन्दी
क. बालिका पठति।	लड़की पढ़ती है। (उदाहरण)
ख. छात्रा क्रीडति।	....
ग. सा पचति।	....
घ. ताः क्रीडन्ति।	....
ङ. सुधा पठति।	....
च. बालिकाः हसन्ति।	....

छ. ताः धावन्ति । ....

ज. ते हसन्ति । ....

संशोधन ....

....

2. **रिक्त स्थान भरो—**

क. बालिका हसति । (उदाहरण)

ख. .... क्रीडति ।

ग. छात्राः .... ।

घ. .... पठति ।

ङ. रमा .... ।

च. .... हसन्ति ।

छ. राधा .... ।

ज. प्रभा .... ।

संशोधन ....

....

3. **सः, सा, ते, ताः — में से सही पद का प्रयोग करते हुए खाली स्थान भरो—**

क. सुधा पचति । सा पचति । (उदाहरण)

ख. बालिका वदति । .... वदति ।

ग. रामः हसति । .... हसति ।

घ. बालकः क्रीडति । .... क्रीडति ।

ङ. छात्राः वदन्ति । .... वदन्ति ।

च. बालकाः क्रीडन्ति । .... क्रीडन्ति ।

छ. बालिकाः धावन्ति । .... धावन्ति ।

ज. नरः चलति । .... चलति ।

संशोधन ....

....

4. **चित्रों की सहायता से रिक्त स्थान भरो—**

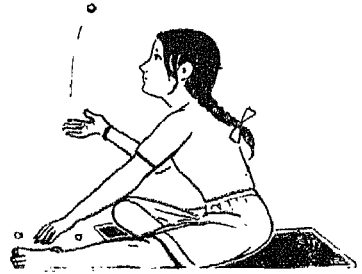
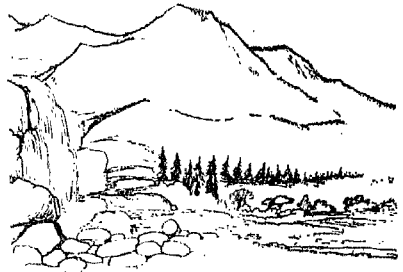
क. बालिका .... ।

ख. .... पठन्ति ।

ग. गङ्गा .... ।

संशोधन ....

....

अध्यापक का हस्ताक्षर

तृतीयः अभ्यासः

दिनांक ....

उद्देश्य—अकारान्त नपुंसकलिंग शब्दों के एकवचन तथा बहुवचन का परिचय कराना ।

1. **रेखांकित पदों को उपयुक्त सर्वनाम द्वारा बदलो—**

क. फलम् पतति । तत् पतति । (उदाहरण)

ख. बालिकाः हसन्ति । .... हसन्ति ।

ग. कमलानि विकसन्ति । .... विकसन्ति ।

घ. नरः चलति । .... चलति ।

ङ. अश्वाः धावन्ति । .... धावन्ति ।

च. छात्रा पठति । .... पठति ।

छ. चक्रम् चलति । .... चलति ।

संशोधन ....

....

2. **कोष्ठक में दिये शब्दों में से उपयुक्त शब्द चुनकर खाली स्थान भरो—**

(तत्, सा, तानि, सः, ते)

क. ते बालकाः क्रीडन्ति । (उदाहरण)

ख. .... पुष्पाणि विकसन्ति ।

ग. .... पत्रम् पतति ।

घ. .... तव अश्वः ।

ङ. .... मम माला ।

च. .... अश्वाः धावन्ति ।

संशोधन ....

....

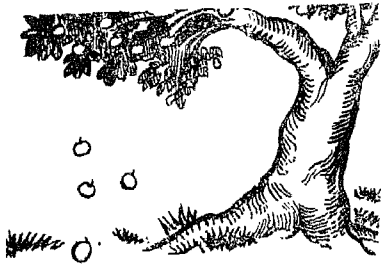
3. **चित्रों की सहायता से रिक्त स्थान भरो—**

क. .... विकसति ।

ख. फलानि .... ।

संशोधन ....

....

अध्यापक का हस्ताक्षर

चतुर्थः अभ्यासः

दिनांक ....

उद्देश्य—मध्यमपुरुष के एकवचन और बहुवचन का प्रयोग, नकारात्मक **न** एवम् **अपि** का प्रयोग कराना।

1. **अनुवाद करो**—

संस्कृत	हिन्दी	
क. त्वम् पचसि।	तू पकाता है।	(उदाहरण)
ख. त्वम् धावसि।	....	
ग. यूयम् खादथ।	....	
घ. त्वम् खादसि।	....	
ङ. यूयम् पचथ।	....	
च. यूयम् पठथ।	....	

छ. त्वम् लिखसि । ....

ज. यूयम् हसथ । ....

संशोधन ....

....

2. **खाली स्थान भरो—**

क. त्वम् पठसि । (उदाहरण)

ख. यूयम् .... ।

ग. .... क्रीडथ ।

घ. .... विकसन्ति ।

ङ. .... न लिखति ।

च. ते .... ।

छ. त्वम् अपि .... ।

संशोधन ....

....

3. **संस्कृत में अनुवाद करो—**

हिन्दी	संस्कृत	
क. तू हँसता है।	त्वम् हससि	(उदाहरण)
ख. तुम सब खेलते हो।	....	
ग. राम पढ़ता है।	....	
घ. श्याम भी पढ़ता है।	....	
ङ. लता लिखती है।	....	
च. लड़की भी पढ़ती है।	....	
छ. वे नहीं खाते हैं।	....	

संशोधन ....

....

अध्यापक का हस्ताक्षर

पञ्चमः अभ्यासः

दिनांक ....

उद्देश्य—उत्तम पुरुष के एकवचन व बहुवचन तथा **अत्र**, **कुत्र**, **तत्र** आदि अव्ययों का प्रयोग करना।

1. **अनुवाद करो—**

संस्कृत	हिन्दी	
क. सः चलति।	वह चलता है।	(उदाहरण)
ख. त्वम् चलसि।	....	
ग. अहम् चलामि।	....	
घ. ते चलन्ति।	....	
ङ. यूयम् चलथ।	....	
च. वयम् चलामः।	....	

छ. सः न गच्छति । ....

संशोधन ....

....

2. **प्रश्न 1 में दिए गए वाक्यों में** चल् **धातु के स्थान पर** क्रीड्, धाव्, खाद्, **और** गम् (गच्छ) **रूपों का प्रयोग करते हुए वाक्य बनाओ—**

क. सः क्रीडति (उदाहरण)	ग. सः खादति (उदाहरण)
....	....
....	....
....	....
....	....
....	....
....	....

ख. सः धावति

....

....

....

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....

....

घ. सः गच्छति

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संशोधन ....

....

3. **नीचे दिए गए तीनों वर्गों में से एक-एक शब्द चुनकर अधिक से अधिक वाक्य बनाओ—**

अहम्	अत्र	पठथ
वयम्	तत्र	हससि
त्वम्	कुत्र	नमामि

4. **संस्कृत में अनुवाद करो—**

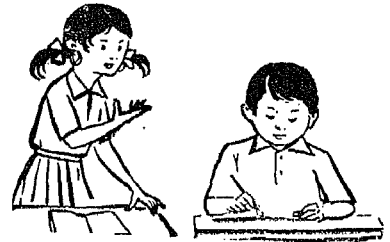
हिन्दी	संस्कृत	
क. मैं यहाँ पढ़ता हूँ।	अहम् अत्र पठामि।	(उदाहरण)
ख. हम सब वहाँ जाते हैं।	....	
ग. लड़कियाँ दौड़ती हैं।	....	
घ. लता नमस्कार करती है।	....	
ङ. वे खेलते हैं।	....	
च. तू नहीं चलता है।	....	

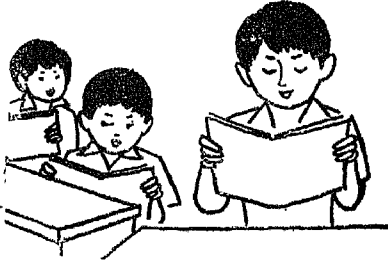
संशोधन ....

....

5. **चित्रों की सहायता से प्रश्नों के उत्तर दो—**

क. त्वम् किम् करोषि ?

उत्तर ....।

ख. त्वम् किम् करोषि ?

उत्तर .... ।

ग. यूयम् किम् कुरुथ ?

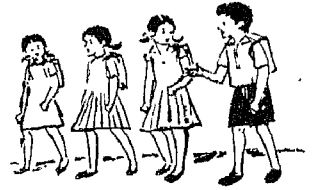
उत्तर .... ।

घ. यूयम् किम् कुरुथ ?

उत्तर .... ।

संशोधन ....

....

अध्यापक का हस्ताक्षर

षष्ठः अभ्यासः

दिनांक ....

उद्देश्य—कर्मकारक का ज्ञान कराना ।

1. **अनुवाद करो**—

संस्कृत	हिन्दी
क. छात्रः पाठशालाम् गच्छति ।	छात्र विद्यालय जाता है। (उदाहरण)
ख. नराः चित्रम् पश्यन्ति ।	....
ग. सा उद्यानम् गच्छति ।	....
घ. तानि फलानि तत्र सन्ति ।	....
ङ. अहम् फलम् खादामि ।	....
च. प्रभा तत्र भोजनम् पचति ।	....

छ. त्वम् पत्रम् लिखसि । ....

संशोधन ....

....

2. **खाली स्थान भरो—**

क. कन्या: विद्यालयं गच्छन्ति । (उदाहरण)

ख. अहम् .... खादामि ।

ग. वयम् .... पठाम: ।

घ. त्वम् .... लिखसि ।

ङ. स: .... पश्यति ।

च. प्रभा .... पचति ।

संशोधन ....

....

3. **संस्कृत में अनुवाद करो—**

हिन्दी	संस्कृत	
क. रमा पत्र लिखती है।	रमा पत्रम् लिखति।	(उदाहरण)
ख. तुम चित्र देखते हो।	....	
ग. लड़के उद्यान में खेलते हैं।	....	
घ. वह घर जाती है।	....	
ङ. वे फल खाते हैं।	....	
च. हम तेज़ दौड़ते हैं।	....	

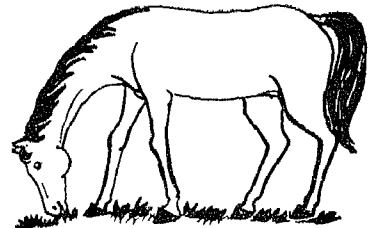
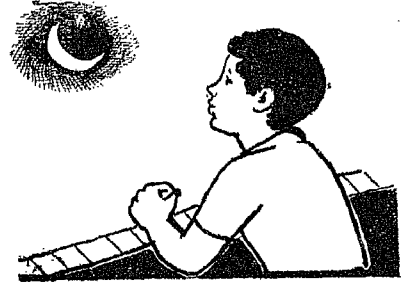
संशोधन ....

....

4. **निम्नांकित चित्रों के आधार पर संस्कृत में वाक्य बनाओ—**

क. ....

ख. ....

ग. ....

सप्तमः अभ्यासः

दिनांक ....

उद्देश्य—सम्बन्ध कारक के रूपों का ज्ञान कराना।

1. **अनुवाद करो**—

संस्कृत	हिन्दी
क. कुसुमानाम् माला कुत्र अस्ति ?	फूलों की माला कहाँ है (उदाहरण)
ख. कुसुमानाम् माला अत्र अस्ति।	....

....

ग. मोहनः गोविन्दस्य गृहम् गच्छति। ....

....

घ. अयम् गोपालस्य विद्यालयः अस्ति। ....

....

ङ. अश्वानाम् समूहः तृणम् खादति। ....

....

च. छात्राः कुत्र गच्छन्ति ? ....

....

संशोधन ....

....

2. **कोष्ठक में दिए हुए शब्दों के साथ उपयुक्त विभक्ति लगाकर खाली स्थान भरो—**

क. सः रमेशस्य अश्वः अस्ति। (रमेश) (उदाहरण)

ख. रामः .... पुत्रः। (गोविन्द)

ग. .... समीपे कूपः अस्ति। (उद्यान)

घ. .... समूहः कुत्र धावति ? (छात्र)

ङ. छात्राः .... गच्छन्ति। (विद्यालय)

संशोधन ....

....

3. **संस्कृत में अनुवाद करो—**

हिन्दी	संस्कृत
क. राकेश का विद्यालय दूर है।	राकेशस्य विद्यालयः दूरम् अस्ति। (उदाहरण)
ख. मेरा विद्यालय समीप है।	....
ग. तुम्हारा घर कहाँ है ?	....
घ. लड़के कहाँ खेलते हैं ?	....
ङ. तुम सब कहाँ जाते हो ?	....

संशोधन ....

....

अध्यापक का हस्ताक्षर

अष्टमः अभ्यासः

दिनांक ....

उद्देश्य—अधिकरण कारक का प्रयोग कराना।

1. **अनुवाद करो—**

संस्कृत	हिन्दी
क. वनेषु मृगाः विचरन्ति।	वन में हरिण विचरण करते हैं। (उदाहरण)
ख. सः गृहे फलानि खादति।	....
....	
ग. ताः बालिकाः उद्यानेषु भ्रमन्ति।	....
....	
घ. तडागे कमलानि विकसन्ति।	....
....	

ङ. पुष्पेषु भ्रमराः गुञ्जन्ति । ....

....

संशोधन ....

....

2. **कोष्ठक में दिए गए शब्दों में उपयुक्त विभक्ति लगाकर वाक्य पूर्ण करो—**

क. वृक्षेषु फलानि सन्ति । (वृक्ष) (उदाहरण)

ख. रमा .... भोजनम् पचति । (गृह)

ग. .... भ्रमराः गुञ्जन्ति । (पुष्प)

घ. .... जलम् अस्ति । (तडाग)

ङ. .... चित्राणि सन्ति । (पुस्तक)

च. अध्यापकाः .... सन्ति । (विद्यालय)

संशोधन ....

....

3. **रेखांकित उदाहरणों के अनुसार खाली स्थान भरो—**

लता	<u>लतायाम्</u>	<u>लतासु</u>	(उदाहरण)
वाटिका	....	....	
कन्या	....	....	
गङ्गा	....	....	
वृक्षः	<u>वृक्षे</u>	<u>वृक्षेषु</u>	
मनुष्यः	....	....	
पुत्रः	....	....	
भ्रमरः	....	....	
वनम्	<u>वने</u>	<u>वनेषु</u>	
पुस्तकम्	....	....	
शरीरम्	....	....	
पुष्पम्	....	....	

संशोधन ....

....

4. **संस्कृत में अनुवाद करो—**

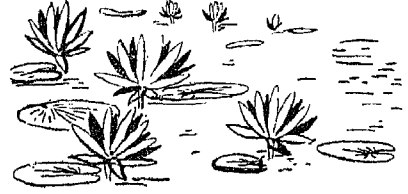
हिन्दी	संस्कृत
क. पेड़ों पर पक्षी रहते हैं।	वृक्षेषु खगाः वसन्ति। (उदाहरण)
ख. हम पाठशाला में पढ़ते हैं।	....
ग. मोहन बाग में खेलता है।	....
घ. प्रभा घर में भोजन पकाती है।	....
ङ. घर के समीप वाटिका है।	....
च. कमला सीता के साथ जाती है।	....

संशोधन ....

....

5. **निम्नांकित चित्रों को देखकर रिक्त स्थान भरो—**

क. ....

कमलानि विकसन्ति ।

ख. ....

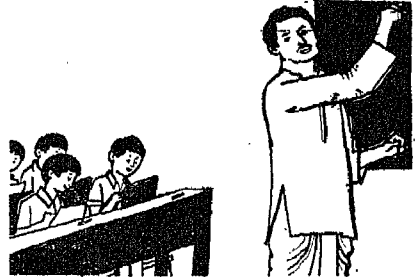
आम्रफलानि सन्ति ।

ग. ....

छात्राः पठन्ति ।

संशोधन ....

....

अध्यापक का हस्ताक्षर

नवमः अभ्यासः

दिनांक ....

उद्देश्य— करण कारक, सह् अव्यव और भविष्यत् काल (लृट्-लकार) का प्रयोग कराना।

1. **अनुवाद करो—**

संस्कृत	हिन्दी
क. बालिकाः कन्दुकेन क्रीडिष्यन्ति।	लड़कियाँ गेंद से खेलेंगी। (उदाहरण)
ख. ताः कलमेन पत्राणि लिखन्ति।	....

....

ग. अहम् अद्य वाटिकाम् गमिष्यामि।	....

....

घ. श्यामः मित्रेण सह गृहम् गमिष्यति। ....

....

ङ. ते रथेन ग्रामम् गच्छन्ति। ....

....

च. सीता केन सह वनम् गच्छति ? ....

....

छ. यूयम् केन यानेन नगरम् गच्छथ ? ....

....

ज. ते वृन्दावनम् कदा गमिष्यन्ति ? ....

....

संशोधन ....

....

2. **कोष्ठक में दिए गए शब्दों में उचित विभक्ति लगा कर रिक्त स्थान भरो—**

क. स: कन्दुकेन क्रीडिष्यति । (कन्दुक) (उदाहरण)

ख. अहम् .... पत्रम् लिखामि । (कलम)

ग. त्वम् .... सह पाठशालाम् गमिष्यसि । (सुनील)

घ. गोपाल: .... सह पठिष्यति । (सुधीर)

संशोधन ....

....

3. **दिए गए उदाहरण के अनुसार परिवर्तन करो—**

क. राम: गच्छति । राम: गमिष्यति । (उदाहरण)

ख. गोपाल: कृषिम् करोति । ....

ग. छात्रा: सत्यम् वदन्ति । ....

घ. बालकाः समाचारपत्रम् पठन्ति । ....

ङ. नराः वाटिकायाम् भ्रमन्ति । ....

च. अश्वाः वेगेन धावन्ति । ....

छ. छात्राः कलमेन लिखन्ति । ....

संशोधन ....

....

4. **संस्कृत में अनुवाद करो—**

हिन्दी	संस्कृत
क. श्याम राम के साथ विद्यालय जायेगा ।	श्यामः रामेण सह विद्यालयम् गमिष्यति । (उदाहरण)
ख. मैं मित्र के साथ उद्यान में खेलूंगा ।	....

....

ग. मीरा गेंद से खेलती है। ....

....

घ. छात्राएँ पाठ पढ़ेंगी। ....

....

ङ. छात्र प्रयाग जायेंगे। ....

....

संशोधन ....

....

अध्यापक का हस्ताक्षर

दशमः अभ्यासः

दिनांक ....

उद्देश्य—अपादान कारक का परिचय एवम् करण कारक से उसकी भिन्नता का बोध कराना ।

1. अनुवाद करो—

संस्कृत	हिन्दी
क. वृक्षेभ्यः कुसुमानि पतन्ति ।	पेड़ों से फूल गिरते हैं। (उदाहरण)
ख. बालः आपणात् आगच्छति ।	....

....

ग. अहम् नगरात् बहिः गमिष्यामि । ....

....

घ. अध्यापकः पुस्तकालयात् पुस्तकानि आनयति । ....

....

ङ. गोविन्दः सायम् मित्रैः सह क्रीडति । ....

....

च. सः गृहात् मित्रेण सह आगच्छति । ....

....

संशोधन ....

....

2. **कोष्ठक में दिए गए शब्दों में से सही शब्द लगाकर रिक्त स्थान भरो—**

क. सः कन्दुकेन क्रीडति । (कन्दुकेन, कन्दुकात्) (उदाहरण)

ख मम गृहम् .... दूरम् । (विद्यालयस्य, विद्यालयात्)

ग. त्वम् दुग्धम् .... । (पिबति, पिबसि)

घ. अहम् विद्यालयम् .... । (गच्छति, गच्छामि)

ङ. सः .... पतति। (वृक्षस्य, वृक्षात्)

च. पिता बालाय आम्रवृक्षात् फलानि .... ।

(त्रोटयति, त्रोटयन्ति)

संशोधन ....

....

3. **संस्कृत में अनुवाद करो—**

हिन्दी	संस्कृत
क. राम घर से जायेगा।	रामः गृहात् गमिष्यति। (उदाहरण)
ख. पेड़ों से फूल गिरते हैं।	....
ग. लता गेंद से खेलती है।	....

घ. श्याम पुस्तक पढ़ता है । ....

ङ. मोहन दूध पीता है । ....

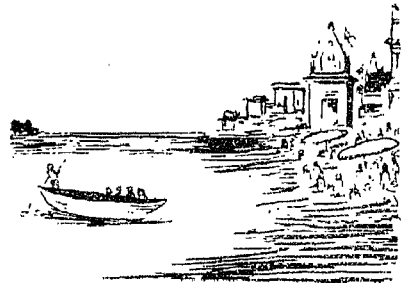
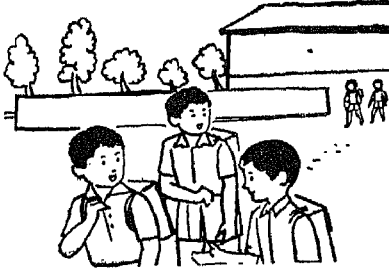
च. रमा चित्रों को देखती है । ....

छ. लड़के घरों से आते हैं । ....

संशोधन ....

....

4. **चित्रों की सहायता से खाली स्थान भरो—**

क. .... प्रवहति ।

एकादशः अभ्यासः

दिनांक ....

उद्देश्य—सम्प्रदान कारक के एकवचन व बहुवचन का परिचय कराना।

1. **अनुवाद करो—**

क. माता रामाय भोजनम् पचति।

माता राम के लिए भोजन बनाती है। (उदाहरण)

ख. पिता बालकेभ्यः मोदकानि ददाति। ....

....

ग. ताः बालिकाः पाठशालाम् पठनाय गच्छन्ति। ....

....

घ. शिक्षकः छात्रेभ्यः विद्याम् ददाति। ....

....

ङ. सज्जना: देवेभ्य: फलानि अर्पयन्ति । ....

....

संशोधन ....

....

2. **कोष्ठक में दिए गए शब्दों में से सही शब्द लगाकर खाली स्थान भरो—**

क. स: मोहनाय जलम् आनयति । (मोहनम्, मोहनाय) (उदाहरण)

ख. .... भोजनम् खादति । (त्वम्, स:)

ग. मोहन: पत्रम् .... । (लिखसि, लिखति)

घ. जनक: .... मोदकानि ददाति । (बालेभ्य:, बालान्)

ङ. सा भ्रमणाय तत्र .... । (गच्छसि, गच्छति)

च. अहम् मित्राय पुस्तकम् .... । (ददासि, ददामि)

संशोधन ....

....

3. **संस्कृत में अनुवाद करो—**

क. राम मोहन को पुस्तक देता है।

रामः मोहनाय पुस्तकम् ददाति। (उदाहरण)

ख. रमा कलम से पत्र लिखती है। ....

....

ग. वह शाम को भोजन के लिए आता है। ....

....

घ. पेड़ों से पत्ते गिरते हैं। ....

....

ङ. हम पढ़ने के लिए विद्यालय जाते हैं। ....

....

संशोधन ....

....

4. **निम्नलिखित चित्रों के माध्यम से प्रश्नों के उत्तर दो—**

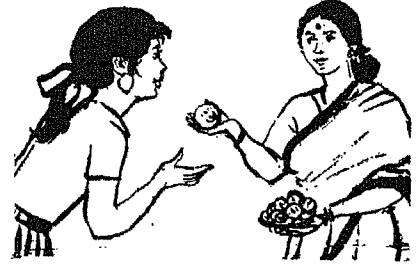
क. भक्ता: मन्दिरम् किमर्थम् गच्छन्ति ?

....

....

ख. धनिक: कस्मै दानम् ददाति ?

....

....

द्वादशः अभ्यासः

दिनांक ....

उद्देश्य—पूर्वपठित कारकों का अभ्यास कराना ।

1. **अनुवाद करो—**

   क. माता पुत्राय दुग्धम् ददाति ।

   माता पुत्र को दूध देती है । (उदाहरण)

   ख. अहम् रामेण सह तत्र गमिष्यामि । ....

   ....

   ग. बालकाः कन्दुकेन उद्याने क्रीडन्ति । ....

   ....

   घ. कन्याः उद्यानात् पुष्पाणि आनयन्ति । ....

   ....

ङ. ते विहाराय उद्यानम् गच्छन्ति । ....

....

च. वयम् गीतम् गायामः । ....

....

संशोधन ....

....

2. **कोष्ठक में दिए गए शब्दों में से सही शब्द लगा कर खाली स्थान भरो—**

क. बालकाः <u>बालकैः</u> सह धावन्ति । (बालकैः, बालकेभ्यः) (उदाहरण)

ख. .... चित्राणि पश्यन्ति । (वयम्, ते)

ग. सः .... पाठशालाम् गच्छति । (पठने, पठनाय)

घ. अश्वः .... धावति । (पादेन, पादैः)

ङ. बालिकाः .... केशान् भूषयन्ति । (पुष्पाणि, पुष्पैः)

संशोधन ....

....

3. **संस्कृत में अनुवाद करो—**

क. लड़के लड़कियों के साथ खेलते हैं।

बालकाः बालिकाभिः सह क्रीडन्ति। (उदाहरण)

ख. राम मोहन के साथ विद्यालय को जाता है। ....

....

ग. लता पुस्तक पढ़ती है। ....

....

घ. लड़कियाँ चित्र देखती हैं। ....

....

ङ. छात्र वाक्य की रचना करता है। ....

....

संशोधन ....

....

4. **चित्रों की सहायता से संस्कृत-वाक्यों को बनाओ—**

चित्र	वाक्य-रचना
क.	....
ख.	....

त्रयोदशः अभ्यासः

दिनांक ....

उद्देश्य—आज्ञार्थक वाक्यों (लोट्-लकार) का प्रयोग कराना।

1. **अनुवाद करो**—

क. शेखर ! त्वम् उत्तमानि पुस्तकानि पठ।

शेखर ! तुम अच्छी किताबें पढ़ो। (उदाहरण)

ख. बालकाः ! यूयम् चित्राणि लिखत। ....

....

ग. यूयम् क्रीडाक्षेत्रे क्रीडत। ....

....

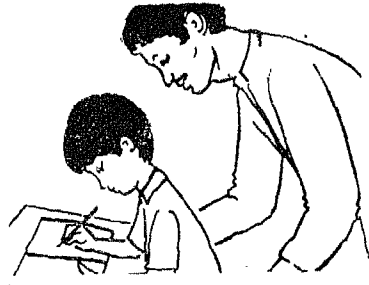
घ. सत्यम् वद। ....

ङ. यूयम् शतम् जीवत । ....

संशोधन ....

....

2. **संस्कृत में अनुवाद करो—**

हिन्दी	संस्कृत	
क. सदा सत्य बोलो ।	सदा सत्यम् वद ।	(उदाहरण)
ख. स्वच्छ पानी पियो ।	....	
ग. राजीव, पाठ पढ़ो ।	....	
घ. पत्र लिखो ।	....	
ङ. राम, तुम गाँव जाओ ।	....	
च. मोहन, तुम दूध लाओ ।	....	

चतुर्दशः अभ्यासः

नीतिश्लोकाः

दिनांक ....

उद्देश्य—श्लोकों का शुद्ध उच्चारण एवं सस्वर पाठ सिखाना और श्लोकों के मुख्य भाव का परिचय कराना ।

1. **निम्नलिखित भावों के अनुसार अपनी पुस्तक से श्लोक चुनकर खाली स्थानों को भरो—**

क. वृद्ध और गुरुजन का आदर करने वाले की बढ़ोतरी होती है ।

....

....

ख. आलसी मनुष्य समाज में सुख नहीं पाता है ।

....

....

ग. प्रयत्न से ही कार्य सिद्ध होते हैं, केवल चाहने से नहीं ।

....

....

घ. उदार मनुष्य के लिए सारा संसार ही एक परिवार है ।

....

....

संशोधन ....

....

अध्यापक का हस्ताक्षर

पञ्चदशः अभ्यासः

जन्तुशाला

दिनांक ....

उद्देश्य—भूतकाल (लङ्-लकार) का प्रयोग सिखाना।

1. **अनुवाद करो**—

संस्कृत	हिन्दी
क. रमा पुस्तकम् अपठत्।	रमा ने पुस्तक पढ़ी। (उदाहरण)
ख. ते चित्राणि अपश्यन्।	....

....

ग. माता भोजनम् अपचत्।	....

....

घ. त्वम् ह्यः पाठशालाम् अगच्छः । ....

....

ङ. अहम् पूजनाय मन्दिरम् अगच्छम् । ....

....

च. यूयम् उद्याने अक्रीडत । ....

....

छ. वयम् दुग्धम् अपिबाम । ....

....

संशोधन ....

....

2 **कोष्ठक में दिए गए शब्दों में से सही शब्द चुनकर रिक्त स्थान में भरो—**

क. बालाः पठनाय पाठशालाम् <u>अगच्छन्</u>। (अगच्छः, अगच्छन्) (उदाहरण)

ख. पिता पुत्राय मोदकानि .... । (आनयन्, आनयत्)

ग. ते दुग्धम् .... । (अपिबत्, अपिबन्)

घ. किम् त्वम् मोदकम् .... । (अखादत्, अखादः)

ङ. यूयम् दुग्धम् .... । (अपिबत, अपिबम्)

च. अहम् उद्यानम् .... । (अगच्छः, अगच्छम्)

छ. वयम् चित्राणि .... । (अपश्यत्, अपश्याम)

संशोधन ....

....

3. **संस्कृत में अनुवाद करो—**

क. सीता राम के साथ वहाँ खेली। ....

....

ख. सीता के साथ लक्ष्मण भी गया। ....

....

ग. बालकों के साथ बालिकाएँ भी चिडियाघर गईं। ....

....

घ. मेरे साथ श्याम भी जलपानघर से आया। ....

....

ङ. तुम्हारे साथ किसनें दूध पिया ? ....

....

संशोधन ....

....

4. **निम्नलिखित क्रियाओं के द्वारा वाक्य रचना करो—**

क. अधावत् बालकः अधावत्। (उदाहरण)

ख. अखादत् ....

ग. अलिखाम ....

घ. अपश्यः ....

संशोधन ....

....

अध्यापक का हस्ताक्षर

षोडशः अभ्यासः

मूर्खवानरकथा

दिनांक ....

उद्देश्य—भूतकाल (लङ् लकार) का अभ्यास कराना।

1. **रिक्त स्थानों में भूतकाल की क्रिया पद भरो—**

क. नीडेषु खगाः <u>अवसन्</u>। (उदाहरण)

ख. वानरः वृक्षतले ....

ग. रामः ह्यः मम गृहम् ....

घ. पशवः क्षेत्रे ....

ङ. नगर्यां महती वृष्टिः ....

संशोधन ....

....

2. **अनुवाद करो—**

हिन्दी	संस्कृत
क. मोहन ने दूध पिया ।	मोहनः दुग्धम् अपिबत् । (उदाहरण)
ख. सब छात्र विद्यालय गये ।	....

....

ग. तू कल कहाँ गया था ? ....

....

घ. तुम सबने वहाँ क्या देखा ? ....

....

ङ. हम सब उद्यान में गेंद से खेले । ....

....

संशोधन ....

....

3. **निम्नलिखित प्रश्नों के उत्तर दो—**

प्रश्न उत्तर

क. वानर: कुत्र अवसत् ? वानर: वृक्षतले अवसत् । (उदाहरण)

ख. वानर: कथम् कम्पित: आसीत् ? ....

....

ग. वानरम् के निन्दन्ति स्म ? ....

....

घ. वानर: केषाम् नीडानि वृक्षात् अपातयत् ? ....

....

ङ. उपदेशः केषाम् प्रकोपाय भवति ? ……………………………………………

……………………………………………………………………………………

संशोधन ……………………………………………………………………………

……………………………………………………………………………………

अध्यापक का हस्ताक्षर

सप्तदशः अभ्यासः

सिंह-शशककथा

दिनांक ....

उद्देश्य—स्म का प्रयोग तथा पूर्व पठित लकारों की पुनरावृत्ति ।

1. **प्रश्नों के उत्तर हिंदी में दो—**

प्रश्न	उत्तर
क. दुर्दान्तः कुत्र अवसत् ?	दुर्दान्त पर्वत पर रहता था । (उदाहरण)
ख. शशकः तम् कुत्र अनयत् ?	....
	....
ग. सिंहः कूपे किम् अपश्यत् ?	....
	....

घ. तदा सः किम् अकरोत् ? ....

....

ङ. सिंहः केन निपातितः ? ....

....

संशोधन ....

....

2. **संस्कृत में अनुवाद करो—**

हिन्दी	संस्कृत
क. शेर वन में रहता था ।	सिंहः वने वसति स्म । (उदाहरण)

ख. शेर प्रतिदिन एक जानवर को खाता था । ....

....

ग. सब जानवर शेर के पास गये । ....

....

घ. खरगोश बहुत चतुर था। ....

....

ङ. खरगोश शेर को कुएँ के पास ले गया। ....

....

च. शेर ने कुएँ में अपनी परछाईं देखी। ....

....

संशोधन ....

....

3 **निम्नलिखित उदाहरणों के अनुसार पाठ में आई हुई भूतकाल की सभी क्रियाओं को चुनकर लिखो—**

वसति स्म, अचिन्तयत्, ...

....

....

....

....

....

संशोधन ....

....

4. **निम्नलिखित क्रियाओं से वाक्य बनाओ—**

क. करोति स्म स: उद्याने भ्रमणं करोति स्म । (उदाहरण)

ख. अगच्छत् ....

ग. अवदत् ....

घ. आसीत् ....

अष्टादशः अभ्यासः

दीपावलिः

दिनांक ....

उद्देश्य—वर्तमान काल तथा भूतकाल की पुनरावृत्ति ।

1. **खाली स्थान भरो**—

क. दीपावल्याः उत्सवः अतीव रम्यः अस्ति । (उदाहरण)

ख. जनानाम् हृदयेषु .... भवति

ग जनाः गृहाणि ....

घ. श्रीरामचन्द्रः युद्धे रावणम् ....

ङ. दीपावल्याः दिवसे जनाः रात्रौ ....

संशोधन ....

....

2. **संस्कृत में अनुवाद करो—**

क. दीवाली के त्यौहार को सब लोग उत्साह से मनाते हैं।

दीपावल्याः उत्सवम् सर्वे जनाः उत्साहेन आयोजयन्ति। (उदाहरण)

ख. बच्चे खिलौने से खेलते हैं। ....

....

ग. सब लोग मिठाई खाते हैं। ....

....

घ. रात को लक्ष्मी की पूजा करते हैं। ....

....

ङ. लोग अपने मित्रों को शुभ संदेश भेजते हैं। ....

....

संशोधन ....

....

3. **निम्नलिखित क्रियाओं को वर्तमान एवं भविष्यत् काल में उसी पुरुष एवं वचन में बदलो—**

भूतकाल की क्रिया	वर्तमान काल	भविष्यत् काल
क. अभवत्	भवति	भविष्यति (उदाहरण)
ख. आलोकयन्	....	....
ग. अजयन्	....	....
घ. आगच्छत्	....	....
ङ. अभूषयम्	....	....
च. अपठः	....	....

संशोधन ....

....

अध्यापक का हस्ताक्षर

एकोनविंशः अभ्यासः

धूर्तशृगालः

दिनांक ....

उद्देश्य—क्त्वा प्रत्यय का प्रयोग सिखाना।

1. **संस्कृत में उत्तर दो—**

क. काकः भूमौ किम् अपश्यत् ?

काकः भूमौ एकं मांसखण्डम् अपश्यत्। (उदाहरण)

ख. सः कुत्र उपाविशत् ? ....

....

ग. वृक्षस्य समीपे अन्यः कः आगच्छत् ? ....

....

घ. मिथ्यास्तुतिं श्रुत्वा काकः किम् अकरोत् ? ....

....

ङ. काकस्य मुखात् मांसखण्डं कुत्र अपतत् ? ....

....

च. मांसखण्डं गृहीत्वा शृगालः किम् अकरोत् ? ....

....

संशोधन ....

....

2. रिक्त स्थानों में उपयुक्त शब्द भरो—

क. काकः शाखायाम् अनृत्यत् । (अनृत्यन्, अनृत्यत्) (उदाहरण)

ख. शृगालः मांसखण्डम् गृहीत्वा वनं प्रति .... ।

(अधावन्, अधावत्)

ग. शृगालः शाठ्येन .... (काकम्, काकेन) अवदत् ।

घ. शृगालः मांसखण्डम् .... (दृष्ट्वा, दृष्ट्या)

लुब्धः अभवत् ।

संशोधन ....

....

3. **संस्कृत में अनुवाद करो—**

क. एक कौआ भूखा था ।

एकः काकः बुभुक्षितः आसीत् । (उदाहरण)

ख. कौए के मुख में मांस का टुकड़ा था । ....

....

ग. सियार चालाक था । ....

....

घ. सियार ने कौए की झूठी प्रशंसा की। ....

....

ङ. सियार ने मांस का टुकड़ा कौए से ले लिया। ....

....

संशोधन ....

....

अध्यापक का हस्ताक्षर

विंशः अभ्यासः

सिद्धार्थः

दिनांक ....

उद्देश्य—तुमुन् प्रत्यय का परिचय और भूतकाल की पुनरावृत्ति।

1. **संस्कृत में उत्तर दो—**

क. सिद्धार्थः भ्रमणाय कुत्र अगच्छत् ?

सिद्धार्थः भ्रमणाय उपवनम् अगच्छत्। (उदाहरण)

ख. उपवने खगाः किम् कुर्वन्ति स्म ? ....

....

ग. हंसं दृष्ट्वा देवदत्तः किम् अकरोत् ? ....

....

घ. सिद्धार्थः देवदत्तं किम् अवदत् ? ....

....

ङ. शरेण विद्धः हंसः कुत्र अपतत् ? ....

....

च. हंसस्य रक्षकः कः आसीत् ? ....

....

संशोधन ....

....

2. **खाली स्थानों में उपयुक्त शब्द भरो—**

क. खगाः कलरवम् अकुर्वन् । (उदाहरण)

ख. देवदत्तः शरेण .... अविध्यत् ।

ग. देवदत्तः सिद्धार्थम् .... ।

घ. सिद्धार्थस्य देवदत्तस्य मध्ये विवादः .... ।

संशोधन ....

....

3. **निम्नलिखित शब्दों का वाक्यों में प्रयोग करो—**

हंसः हंसः भूमौ अपतत् । (उदाहरण)

उपवनम् ....

खगाः ....

रक्षकः ....

अतुष्यत् ....

वृत्तान्तम् ....

संशोधन ....

....

अध्यापक का हस्ताक्षर

एकविंशः अभ्यासः

दशमः त्वम् असि

दिनांक ....

उद्देश्य—एक से दस तक संख्यावाचक शब्दों का ज्ञान कराना।

1. **संस्कृत में उत्तर दो—**

क. कति बालकाः स्नानाय अगच्छन् ?

दश बालकाः स्नानाय अगच्छन्। (उदाहरण)

ख. ते स्नानाय कुत्र अगच्छन् ? ....

....

ग. बालकः कम् न अगणयत् ? ....

....

घ. मार्गे कः अगच्छत् ? ....

....

ङ. पथिकः किम् अवदत् ? ....

....

संशोधन ....

....

2. निम्नलिखित शब्दों के संस्कृत शब्द बताओ—

हिन्दी	संस्कृत	
एक	एकः	(उदाहरण)
दो	....	
तीन	....	
चार	....	
पाँच	....	

छः ....

सात ....

आठ ....

नौ ....

दस ....

संशोधन ....

....

3. **संस्कृत में अनुवाद करो—**

क. चार लड़के खेलने के लिए बाग में जाते हैं।

चत्वारः बालकाः क्रीडनाय उपवनम् गच्छन्ति । (उदाहरण)

ख. सब लड़कों ने दस आम खाये। ....

....

ग. पाँच मित्र घूमने के लिए जायेंगे। ....

....

घ. मैं स्नान के लिए नदी जाऊँगा। ....

....

ङ. वहाँ मैं नौ पक्षियों को गिनूँगा। ....

....

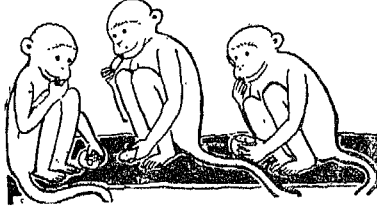
संशोधन ....

....

4 **चित्रों के आधार पर प्रश्नों के उत्तर दो—**

क. कति अश्वाः धावन्ति ?

उत्तर ....

....

ख. कति वानराः फलम् खादन्ति ?

उत्तर ....

....

ग. कति बालिकाः नृत्यन्ति ?

उत्तर ....

....

संशोधग ....

....

अध्यापक का हस्ताक्षर

द्वाविंशः अभ्यासः

सुभाषितानि

दिनांक..................................

उद्देश्य—श्लोकों का शुद्ध उच्चारण कराना, सस्वर पाठ का अभ्यास और मुख्य भावों का परिचय।

1. **नीचे लिखे भावों के अनुसार श्लोक लिखो—**

क. पुस्तक पढ़ने के पश्चात् अभ्यास करना आवश्यक है।

....

....

ख. गुणवान लोग नम्र होते हैं।

....

....

ग. सुख देना पुण्य और दुख देना पाप है।

....

....

घ. प्रिय वचन बोलने में कृपणता मत करो।

....

....

. अधिक सन्तान वाले बड़े परिवार की अपेक्षा गुणी सन्तान वाला छोटा परिवार अच्छा है।

....

....

संशोधन ....

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अध्यापक का हस्ताक्षर

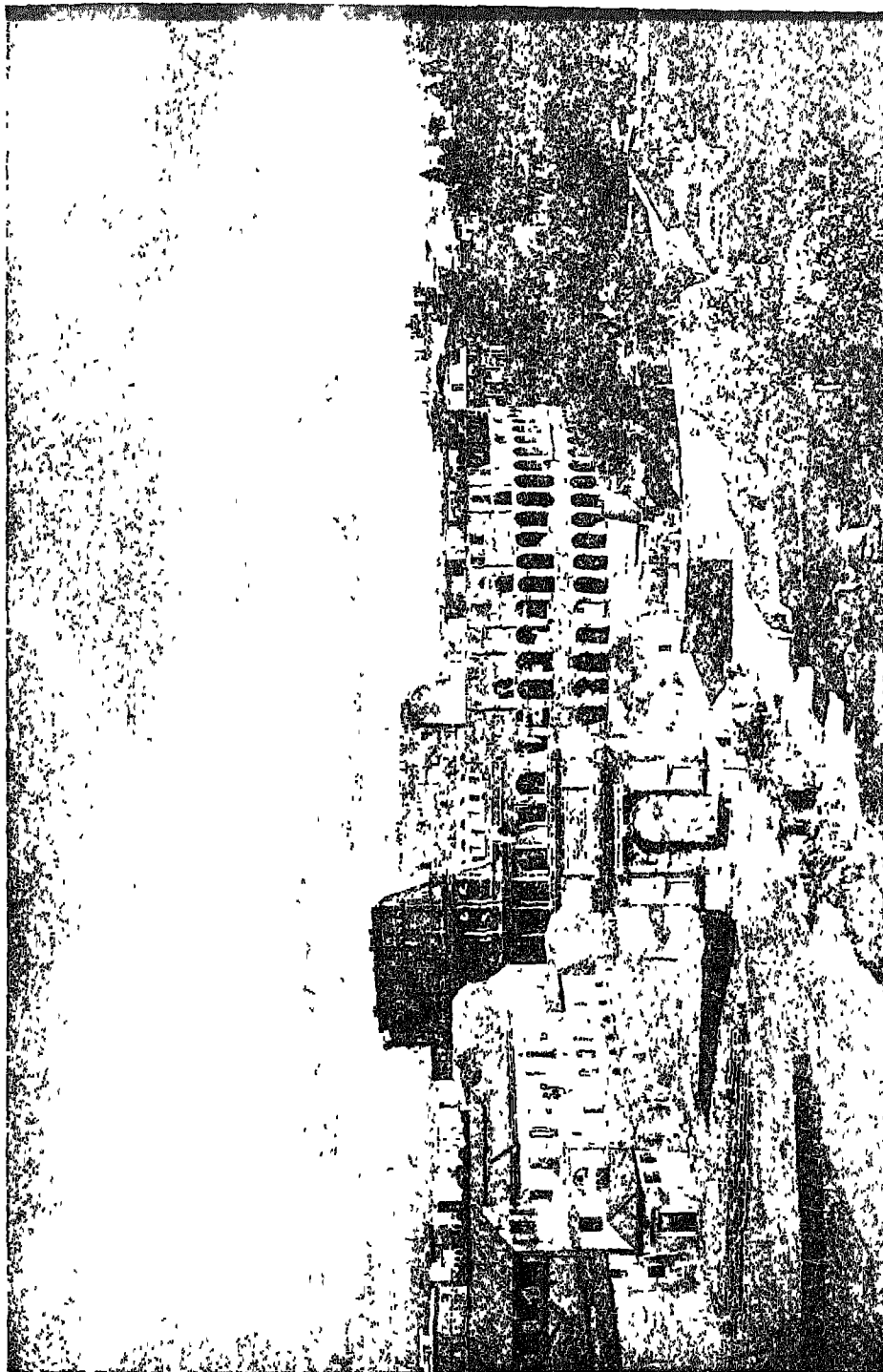



Photo W F Mansell

THE COLOSSEUM AND ARCH OF TITUS—ROME

The Colosseum is an amphitheatre built by Vespasian and Titus about A D 80, in great part still standing south east of the Forum in Rome The building is an elliptical structure measuring about 615 by 510 feet externally It consists of *rings* of arched brick galleries covered within by slopes containing rows of seats *which were encrusted* with marble Beneath the arena are the vaults that were used for the attendants, gladiators, beasts, etc.

The arch of Titus was erected to commemorate the conquest of Jerusalem, and dedicated by Domitian in A D 81 In 1823 it was restored by order of Pius VII, and the missing marble portions replaced by travertine

was not new, for they told of great walls, high forts and deep ditches they had helped to make when they were in Gaul.

Hadrian's wall was made up of a wide deep ditch, a stone wall ten to sixteen feet high, a road running the length of the wall, and then another ditch with high mounds in front and behind. On the wall was a gallery from which the sentries could look out northward for the coming of an enemy At intervals along the wall were forts for the soldiers. In these forts were workshops for making and mending armour and weapons, stables for the horses, ovens, bakehouses, wells of water and storehouses for food. Outside each fort was a small town, having houses, shops and inns Here lived the wives and families of the soldiers, traders and other people.

Hadrian began the rebuilding of Jerusalem, but he would not permit any Jews to live there There stands in Rome to-day a grand building called the Pantheon which Hadrian built.

Britain under the Romans.—For nearly three hundred and fifty years the Romans ruled Britain During that long time many changes took place in the land. Towns, villages and country houses grew up in the lowlands; but in the uplands of Wales and the north there were only forts joined by roads. Wherever the Romans went, as we have seen, they made roads, the best roads in the world, for good roads were needed along which the soldiers could march and ride quickly to keep order, and along which the merchants could travel with their wares Many of our main roads to-day run upon the top of the Roman roads Great stone camps for the soldiers were built at different places, and some of our present towns were built where these camps once stood You will see from your map that several names of towns on the Roman roads end in "caster" or "cester" which comes from the Latin word "castra"—a camp

Towns and camps were surrounded by high walls Each town had a market place, a town hall and public baths There were also temples to the gods and sometimes there were Christian churches. Shops and inns lined the main streets, or were grouped round the market place. Many private houses were well-built dwellings with beautiful mosaic floors, and good brick and plaster walls painted in the Roman fashion. Scattered about Roman Britain were country houses or villas where the rich people lived. In our museums we can see many glass jars, cups, bowls, pottery, brooches and other ornaments all of Roman make and pattern which have been found under the ground in Britain

Although the Britons learned much from their conquerors, they did not altogether change their ways Those who lived near the towns learned to build houses, to dress in the toga, and to speak like Romans But most of the Britons went on living much as they had done before, except that they did not fight—for the Romans had brought to Britain, as to all their other provinces, the great blessing of *peace*

TEACHING HINTS

1. Map.—It will obviously be impossible to teach this lesson satisfactorily without a map of Britain. A good plan is to draw a simple outline on the blackboard, let the children copy it, and then fill in details as the lesson proceeds It cannot be too frequently noted that children are generally extremely hazy about the positions of places. Such names as Gaul, Dover, Deal, Southampton Water, may mean nothing to the children They should in the first instance make some *effort* to locate them, either by inserting the names on their own sketches, or by seeking for them in a map.

2. Britons.—Children are apt to think that the Ancient Britons were much like pre-historic men. This notion must be corrected. They should understand that in many ways the Britons were civilised.

They could spin and weave, grow grain, make pottery and jewellery, trade, etc It should be made clear that because Britain is an island the people would not readily come in contact with more advanced nations

3. The conquest.—It should be made clear that the Romans found it very difficult to conquer the hill country They should understand why the Roman province was really bounded by Hadrian's Wall When they understand how the Romans made roads and built forts in Britain, they will the better appreciate that this was the policy adopted in most of the Roman conquests

4. Local history.—In many schools it will be possible to connect this lesson with some interesting relic of Roman times There may be in the vicinity of the school a part of a Roman road, a wall or a bridge. In a nearby museum there may be some remains of pottery, armour, pavement, etc Place names such as Chester, Stratford, Wallsend should be noted Every opportunity should be taken to interest the children in local history.

5. News from Rome.—One of the main reasons for including news from Rome in this story is to help the children to realise that the invasion of Britain was merely an incident in the general expansion of the empire What took place in Britain was a repetition of what had been taking place for many years in western Europe. The children will readily compare ways of disseminating news to-day with that in Roman times.

6. Pompeii.—The story of the destruction of this town is splendidly told in Lord Lytton's *The Last Days of Pompeii.* It will be worth while to read the account of the eruption of Vesuvius from this book to the children The Class Picture (No 153) in the portfolio, called *Faithful unto Death,* is associated with the story of the destruction of Pompeii The Class Picture of *A Roman Cook Shop* (No 30) is drawn from one painted on a wall in the ruined city

7. The Colosseum.—This word is sometimes, but less correctly, spelled *Coliseum.* It was originally called the Flavian amphitheatre, and occupies part of the site of the gardens attached to the Golden House of Nero. In front of the ruins is the base of the *colossus* of Nero, a gilded bronze statue more than one hundred feet high From this, or from its general magnificence, the building took its popular name in the eighth century. The building is sometimes said to have accommodated over eighty thousand people, but a more probable estimate is forty-five thousand. It was built partly by Jewish captives taken after the destruction of Jerusalem During three hundred years it was used for gladiatorial combats. Ten thousand men, furnished with weapons and extremely skilled in the use of them, athletic and well-fed, were always kept in readiness for the fatal service. It is specially associated with the martyrdoms of the Early Christians. The Emperor Honorius is said to have abolished gladiatorial combats in A D 406, but wild beast baiting lasted a century longer. After a long abandonment the Colosseum was used as a fortress in the Middle Ages, and as an arena for bull fights. During the fifteenth, sixteenth and seventeenth centuries it was used as a quarry, and afforded building material for a number of churches and palaces Lastly, it was consecrated to the memory of the Christian martyrs To-day the Colosseum is one of the grandest ruins of ancient Rome, and has for its distinction its immensity, and the indestructible solidity of its construction

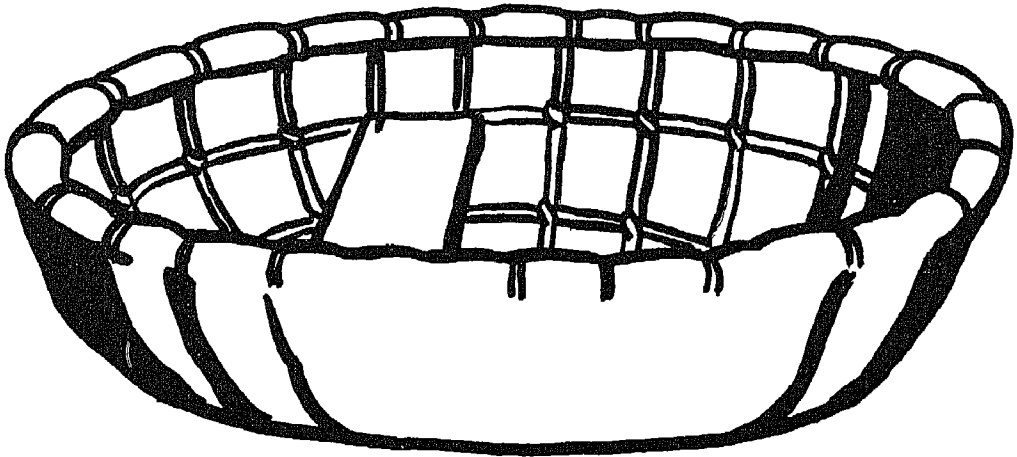
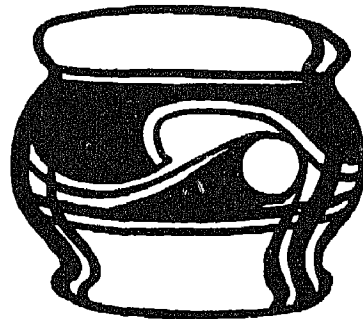
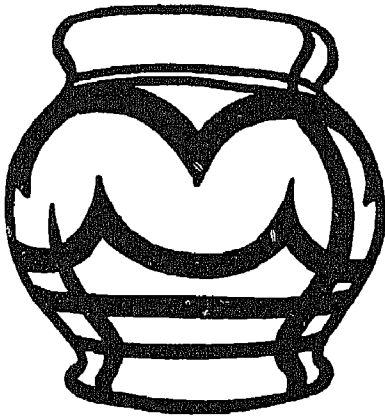
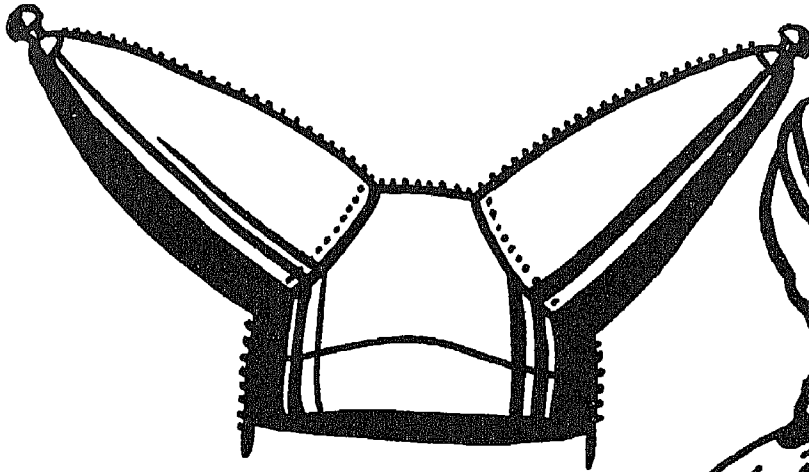
8. Memory work.—(*a*) The Ancient Britons were divided into many tribes who lived in villages of huts. (*b*) They grew wheat and barley, hunted and fished, made their own clothes from wool and flax, and were skilful workers in gold, silver and bronze. (*c*) Julius Caesar invaded Britain twice to put fear

into the hearts of the people (*d*) The Emperor Claudius sent legions of soldiers to conquer Britain, A.D 43. (*e*) The Romans made roads, built bridges and walls, cities and forts (*f*) The greatest gift that the Romans gave Britain was peace from war

9. Exercises—(*a*) What is a century? (*b*) How many centuries are there in two thousand years? (*c*) Why were the Romans able to defeat the Britons in battle? (*d*) Why did the Romans build walls in Britain? (*e*) Name some old towns of Roman Britain. (*f*) How was news carried from Rome to Britain? (*g*) How do we know that the Romans once lived in Britain? (*h*) Write sentences to explain that —(1) The Roman soldiers were proud of their standard (2) The Britons were brave fighters. (3) Roman towns were in many ways like our own towns to-day. (4) The Romans made great changes in Britain

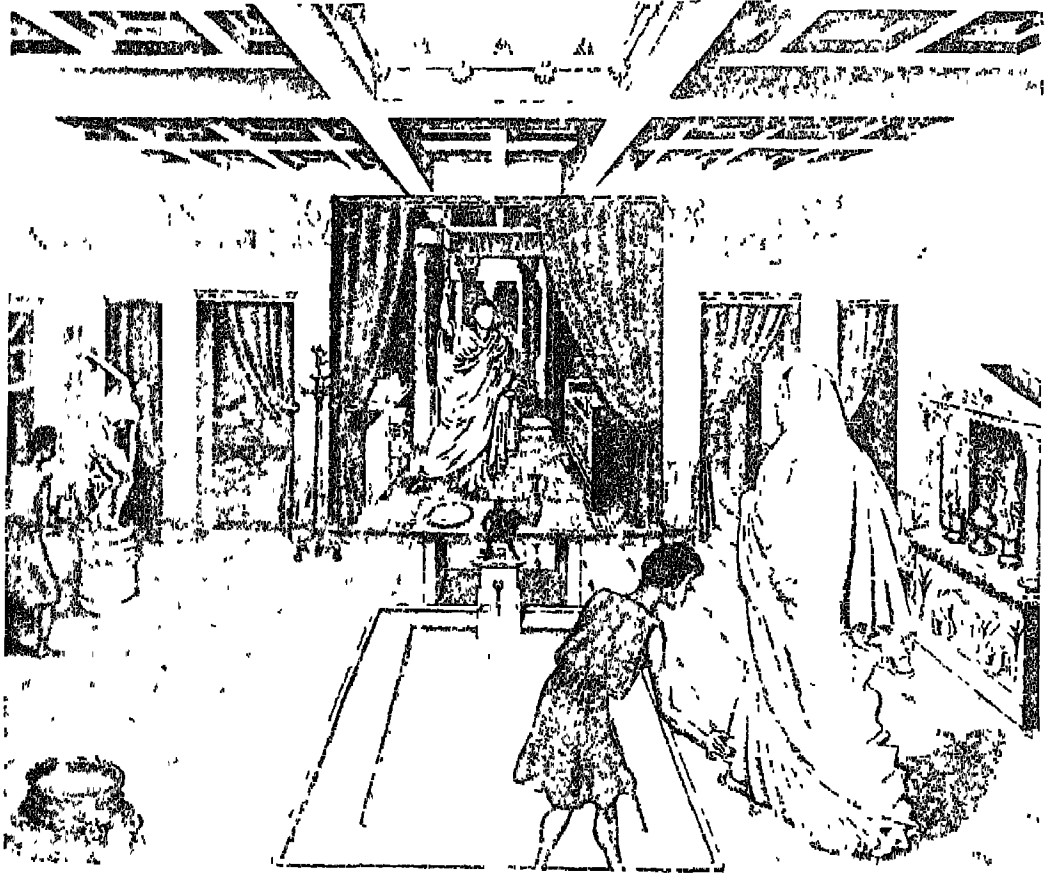
ROMAN SHIP IN THE HARBOUR OF THE TIBER

On the top of the mast is a figure of Victory, the mainsail is decorated with the wolf and twins There is another figure of Victory on the stern, which also has a goose head The statues on pedestals and the flaming altar are on the quay

SKETCHES FOR THE BLACKBOARD

Bronze Celtic Helmet
British Pottery
British Coracle

Roman Standard

VIII. CONSTANTINE THE GREAT

PICTURE REFERENCE

A Rich Man's House in Ancient Rome

(Class Picture No 32 in the portfolio)

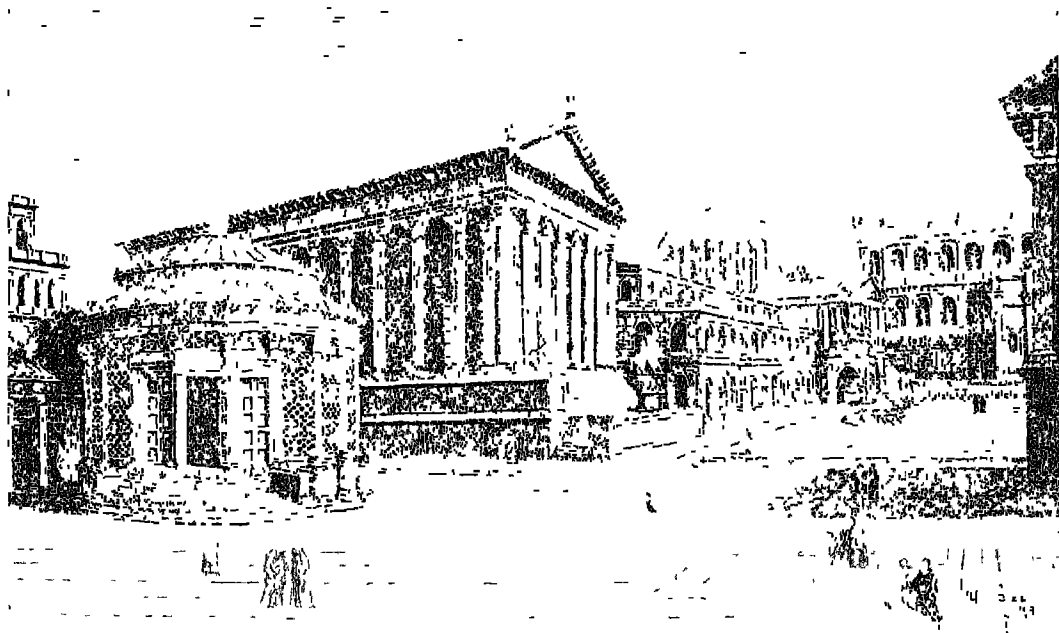
THE illustration (No 32 in the portfolio) is a picture of the atrium of a Roman house of a well-to-do citizen The lady of the house has just returned from the public baths, and as she enters a slave bows to her, and her husband stands to greet her from the reception room The first thing to be noticed in the atrium is the *impluvium* or shallow basin under the opening in the roof The object of the basin was to receive the rain which came through the opening—the *compluvium* At the far end of the basin is a plinth with a fountain and a statue standing on it Just beyond is a stone table, which is a survival of ancient practice It is now used as a stand for ornaments On the right is a shrine in the form of a miniature temple In it is the bust of the present head of the family flanked by two silver statuettes On the far left of the room is a statue of the Discus Thrower and a little beyond and to the right a tall lamp-

stand or candelabrum The reception room was normally a place where domestic records and papers were kept, where the master transacted business and interviewed his dependents and friends This room contains a cupboard on the left and on the right a strong box for holding treasure (Further details are given in the Reference Book)

INTRODUCTION

Decline of the Roman Empire.—With the death of Marcus Aurelius the second century of peace came to an end, and the Roman Empire, which had reached its greatest glory during the reigns of the "Good Emperors," began the downward career which led to its ruin. The chief external cause of the rapid disintegration of the empire was the increased pressure of unconquered tribes on the Roman frontiers. In the west the Franks across the Rhine, and the Goths across the Danube and the Black Sea, and in the east the Persians, all threatened to overrun the boundaries of the empire

Rome could have withstood these external attacks on her greatness had not internal decay weakened her power of self-defence. The Government was in a state of chaos. Power had passed to the army, who chose the emperors and deposed them at will. Emperors followed each other in rapid succession In the seventy-three years between A D. 211 and 284, twenty emperors met with violent deaths, and in a single year (237-8) no fewer than six rulers were elected, worshipped as emperors and finally murdered by their soldiers. Without a central authority at the head of affairs, Rome was unable to present a united front to external foes.

The morale of the populace was growing steadily worse every year The decline in agriculture forced more and more of the citizens to sell themselves into slavery.

TEMPLE OF VESTA — TEMPLE OF CASTOR AND POLLUX — BASILICA JULIA — TEMPLE OF VESPASIAN

Reconstruction of Part of the Roman Forum

The idle mob were corrupted by the doles of free food and money, constantly increasing in amount, they were degraded by the gladiatorial shows, which grew ever more brutal, and by the licence of the theatre, which degenerated into vice. Further, fearful pestilences brought by the army from the East wasted the population just when Rome had most need of man-power. The empire was also suffering from want of money. Vast sums were needed to pay the salaries of public officials, to support the unemployed and to meet the expenses of the court. Owing to the decline in agriculture there were fewer taxpayers, and it became increasingly difficult to raise the necessary revenue.

Diocletian (A.D. 284-305).—Towards the close of the third century the destruction of the empire appeared imminent, but the catastrophe was averted by the accession to the throne of one of the most illustrious emperors in Roman history Diocletian, an Illyrian soldier of low birth, was a man of great ability and strength of character, who fought his way to the command of the legions He was proclaimed emperor, and at once established himself as an absolute monarch in the oriental style, wearing a royal diadem and gorgeous jewelled robes. For the better defence of the frontiers he divided the empire into four administrative regions. Diocletian himself governed from Nicomedia, and the other three Caesars from Surinium, Milan and Trèves respectively. To lessen the peril of mutinies in the army, he divided the empire into over one hundred provinces, thus preventing individual governors from having too great authority The Roman senate now practically disappeared from the stage of history. Diocletian and the emperors who followed him were autocrats with unlimited power They bore the proud title of *dominus*, their persons were sacred and at first they were worshipped as gods. As a divinity the emperor was called the *Invincible Sun*, and all good citizens throughout the empire were required to join in the official sacrifices to the head of the State. In oriental manner subjects approached the throne with the bent knee and prostrate form of adoration. Diocletian laid down careful rules to provide for the succession to the throne, but, in spite of his provisions, on his retirement from office in A D 305 chaos once more supervened. Six rival emperors laid claim to the imperial power. Gradually, by skill, force and treachery, Constantine the Great emerged triumphant, and in A D 323 he was established as sole emperor of Rome

The rise of Christianity.—Constantine was the son of the emperor Constantius, upon whose death at York in 303 he was proclaimed emperor by the soldiery Until 312 he ruled Gaul and Britain and showed himself as cruel as any of his predecessors when he gave whole companies of barbarians to the wild beasts of the amphitheatres It has been said of him that he was called "the Great" rather in virtue of what he did than of what he was This remark is just, since two of his deeds changed the course of history. These were the recognition of Christianity and the founding of Constantinople

For many years there had been a growing dissatisfaction among the people with their religion. Greek thinkers were no longer satisfied with the crude worship of the gods of their ancestors, and educated Romans gained little spiritual comfort from the worship of their pagan gods and of the Caesars. Their religion as then practised threw no enlightenment on the future world and life beyond the grave Greek Stoicism, such as we see expounded in the writings of Marcus Aurelius, became to many men a real religion, but it appealed only to the educated.

The conquests in the East had brought the Romans in contact with many oriental forms of worship. Of these forms one of the most remarkable was that of Mithraism. Mithra, the Persian sun-god, was a god of light, truth and purity. Mithraism was a

mystery religion and attracted neophytes by claiming to possess ancient and divine wisdom, and by holding out hopes of immortality in union with the god. Towards the close of the second century the cult had begun to spread rapidly throughout the army, the mercantile classes and slaves The emperors encouraged it because of the support which it afforded to the divine right of monarchs Mithra was represented as a young hero miraculously born from a rock, and for this reason his worship was carried on in underground caves and cellars The 25th of December was the day of the great annual celebration of this deity, and after the triumph of Christianity this day was kept as the anniversary of the birth of Christ Mithraism, however, had only a temporary success, for it could never be universal, as women were, apparently, excluded from its mysteries

Christianity rose among the Jews The exact date of the crucifixion of Christ is unknown It took place during the reign of Tiberius, when Pontius Pilate was procurator of Judaea. At the time of the crucifixion Christ's followers probably numbered not more than a hundred persons, and His execution cast them into utter despair Only a few weeks after the event, however, this same handful of men and women had become a vital force. Proclaiming that Christ was risen from the dead, and that salvation was to be found in His name, they moved fearlessly through the streets of Jerusalem, making converts as they went The Jewish leaders seriously opposed the new doctrines, and the followers of Jesus withdrew to Samaria, Damascus and Antioch

So far the faith had been spread only among the Jews, but a new convert, Saul of Tarsus (afterwards the Apostle Paul), admitted pagans, or Gentiles, to the privileges of the new religion. St. Paul laboured for thirty years in spreading the Gospel, and Christians established their headquarters in many cities, and from them missionaries spread far and wide, gradually carrying the Gospel throughout the Roman Empire. By the end of the first century A D there were Christians throughout Asia Minor. A hundred years later almost every one of the forty-three provinces of the Roman Empire had its church. A century later still, the message had been spread beyond the boundaries of the empire, and missionaries were making converts among the Germanic tribes, the Goths and the Britons A Christian writer of this time thus describes the universality of the Christian faith: "We are but of yesterday, yet we have filled all your places of resort—cities, islands, fortresses, towns, markets, the camp itself, the tribes, town councils, the palace, the senate and the forum. We have left you only the temples of your gods"

Circumstances had prepared the way for this wonderful missionary success The conquest of the Macedonian empire in the east and the Roman empire in the west had provided facilities hitherto unknown for travel and intercourse between nations. Since the Mediterranean peoples spoke either Greek or Latin, Christian missionaries could be understood wherever they went. In every city of the empire there were colonies of Jews, and their numbers were increased after the destruction of Jerusalem Naturally the Jews were eager to hear the news of the coming of the Messiah All these conditions were favourable to the rapid spread of the new faith

The believers had early begun to organise themselves into communities, or assemblies These little groups met in private houses, where they listened to readings of the scriptures, sang hymns and joined in a sacrificial meal in memory of the last supper of Jesus with His disciples. As time went on beautiful churches were erected and it was found necessary to appoint certain officers known as *presbyters* (the original form of our English word *priest*) to conduct the services and teach the converts The chief presbyters were known as *bishops* (from the Greek word *episkopos* meaning, literally, *overseer*)

The new faith spread so fast that it soon attracted official notice, which was, however, unfavourable, not to the faith itself, but to its social implications. Christians declared that the recognised State worship of the gods was pagan and they refused to join in it, they refused to pay the customary sacrifices to the guardian spirit of the emperor, for they regarded it as idolatry, and they refused to swear by pagan gods in law courts. In short, Christians seemed to the authorities to be bad citizens, and the emperors attempted to crush Christianity by a series of persecutions. We have noted that during the reign of Nero Christians were accused of having caused the great fire in Rome, and many of them were put to death in consequence.

The fiercest of the persecutions took place during the reign of Diocletian (A D 284-305) and lasted eight years. He began the "Great Persecution" in February, 303, at Nicomedia. The church, which stood high up in the city, was destroyed, and an edict was published to the effect that all churches were to be destroyed and any who refused to attend the religious rites of the State were to suffer torture and death. Every form of cruel death was inflicted on the *martyrs*, or *witnesses* to the power of Christ. But "the blood of the martyrs is the seed of the Church." The victims welcomed the death which they believed would gain them a heavenly crown. Their fellow Christians buried their mangled bodies in underground caverns, or *catacombs*, and there those who had escaped the Roman soldiers met for worship. Furthermore, the sight of such quiet fearlessness and certainty in the martyrs influenced many men and women to adopt the faith which produced it, and the emperors began to realise that persecution was useless.

In A D 313 Constantine and his colleague, Licinius, issued the Edict of Milan, which gave the Christian religion equality with the other religions of the empire. Constantine himself presided in 325 at the first

A Chamber in the Roman Catacombs

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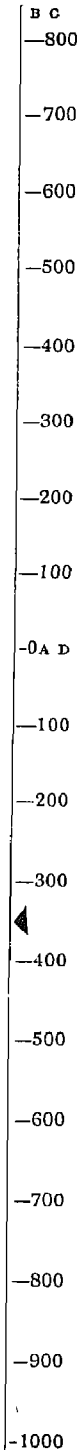
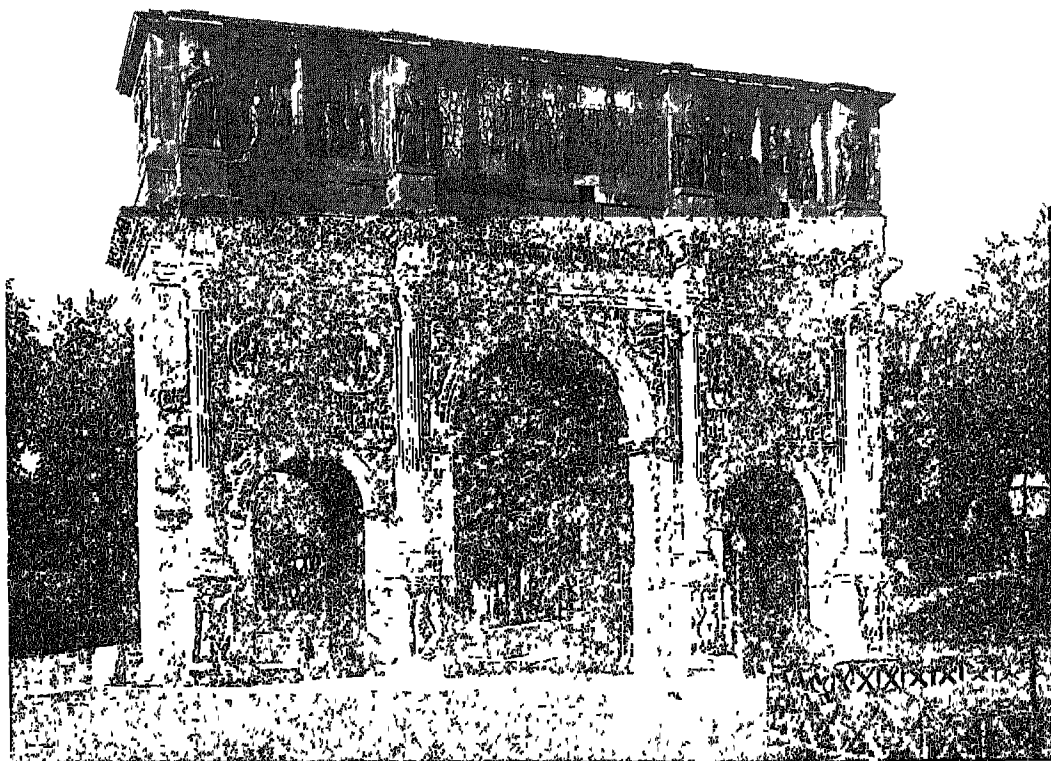

THE ARCH OF CONSTANTINE, ROME—EASTERN SIDE

Erected over the Via Triumphalis after the victory of Constantine over Maxentius in A D 312. This is one of the best preserved of all the ancient Roman edifices It is partly composed of fragments belonging to earlier structures

general council of the Church at Nicaea in Asia Minor Many of the bishops and priests who attended this council bore scars showing what tortures they had endured for their faith The council drew up the Nicene Creed, which for the first time definitely formulated the beliefs of the Church About fifty years after Constantine's death (A.D. 392) the emperor Theodosius made Christianity the State religion The pagan temples were closed and sacrifices to pagan gods forbidden

Constantine's act of religious toleration had far wider results than he had anticipated, for it gave to the world the ideal of the Christian life, and also the institution of the Christian Church, which alone stood firm in the troubled centuries when the barbarian hordes swept through the empire.

Foundation of Constantinople.—The second important action of Constantine was the removal of his capital from Rome to Byzantium, an ancient Greek colony on the Hellespont (now known as the Dardanelles) where, centuries before, Xerxes' Persian army had crossed into Europe. The supposed celestial vision which induced him to choose this site was supported by a number of human considerations. The place had great natural beauty; it was an excellent centre from which to direct operations against the eastern barbarians and overland trade from both East and West passed that way. From

LEAF OF A BYZANTINE IVORY DIPTYCH THE ARCHANGEL MICHAEL

British Museum

A beautiful piece of ivory carving executed in the first period of the Eastern Empire At the top is a Greek inscription "*Receive these gifts and having learned the cause——*", doubtless continued upon a second leaf, now lost

the religious viewpoint, it was desirable to have a city free from all pagan traditions in which to establish the new Church

A vast amount of money was spent on the building up of the new city, with its walls, gates and water supply Young men who showed any aptitude for architecture were specially trained and pressed into service, and in a very short time, some say only a few months, the city was finished

That much of the construction was of the type now known as "jerry-building" and needed constant repair mattered not at all to the joyful populace who assembled at the inauguration of the "New Rome" A D. 330, when the city was dedicated by Christian priests to the Virgin Mary. Their rejoicings were not disturbed by the fact that the ancient cities of the empire had been despoiled of their treasures of art to decorate the new capital, or that the wealthiest patricians and most skilful artisans had followed their emperor East, leaving Rome sadly denuded. "New Rome," as Constantine christened the city, was soon called "Constantinople"—the "City of Constantine"

This transfer of the capital meant the division of the Roman Empire into two halves which were never to be permanently united again Gradually, too, antagonism arose between the eastern and western Churches till at last, in 1054, the Latin and Greek Churches separated into two distinct bodies, and such they have remained till this day

For eleven hundred years Constantinople guarded western civilisation against its eastern foes, and it was not till 1453 that it was captured by the Turks, and the Byzantine empire came to an end.

The last years of Constantine's reign were sullied by many murders, among them those of his own wife and son He became effeminate and luxurious, and lost the respect of his subjects. Moreover, for all the favour he showed to the Christians, he delayed his own baptism till he was on his death bed, A D 337, when he was baptised by the

bishop Eusebius, the "Father of Church History," who has left us the fullest account of his life. Constantine died at Nicomedia, and was buried in the Church of the Apostles at Constantinople; the figures of the apostles were placed around his tomb, while the Roman senate gave him divine honours.

CHILDREN'S STORY

The "Golden Age."—The period of the two hundred years of peace which began with the reign of Augustus is often called the "Golden Age" of Rome During all that time the legions were stationed in camps and forts ever ready and watchful to prevent the barbarians from crossing the Rhine, and the Danube and the Euphrates During this wonderful *Roman Peace* all the millions of people in the great empire lived happily together looking after their crops, their sheep and cattle, tending their vineyards and olive groves, building fine cities, trading by road and sea from one end of the Roman world to the other In every part of the empire Roman magistrates saw that the just laws were obeyed; and during that long time many good emperors, such as Hadrian, ruled the empire Perhaps the only truly unhappy people were the thousands of slaves who worked in gangs on some of the great estates

The two hundred years of the Golden Age passed away, and again came a terrible time of civil wars lasting for one hundred years. Some of the legions wanted one of their generals to become emperor, and other legions chose another general As soon as one emperor had been crowned, his soldiers would be defeated, and another emperor would take his place Between the years A D 211 and 284 no fewer than twenty emperors met violent deaths War, plague and famine all but ruined the empire Work on the land did not pay, and more and more citizens sold themselves into slavery More and more people demanded free food and money Thousands with no work to do wasted their time watching the fights of the gladiators, or the chariot races in the circus.

Diocletian, the emperor who wore a crown.—The dark clouds of ruin seemed to be settling down on Rome, when in the year A D 284 a remarkable soldier named Diocletian won his way to the head of the legions and ruled the empire with a firm hand He did not ask the senate what he should do, or what he should not do, he himself gave the orders and saw that they were carried out To add to his importance he wore a crown and gorgeous jewelled robes of silk and gold, and was called *Lord* When his subjects approached his throne they were obliged to bow down to him as they would to one of their gods All good citizens throughout the empire were expected to join the magistrates and other officers when they went to the temples to offer sacrifice for the welfare of the emperor The Roman republic had passed away Diocletian was an absolute monarch, and for a time he saved the empire

To help him in keeping back the barbarians he chose another emperor and two Caesars to rule in different parts of the empire, and he himself spent most of his time at Nicomedia, where he could be ready with his army to keep back the barbarians from the East Among the many other things he did to restore order and keep peace in the empire, he tried to make people worship regularly in the temples as they had done in olden days, but some, the Christians, felt that they could never again worship the heathen gods, and with these people Diocletian was exceedingly angry Let us hear a little of the wonderful story of the Christians

The Christians.—I need not tell you the story of Jesus Christ, for that is best told in the Bible After Jesus had been crucified by the Roman soldiers, there were only about one hundred followers who really believed in Him. These were mostly poor Jews, for Jesus Himself was a Jew, and they

went about Jerusalem telling others of Christ's teaching The chief Jews of the city were very angry with these followers, and the Christians were obliged to leave Jerusalem and go to other cities to spread the gospel, or "good news"

In the small town of Tarsus lived a tent-maker, one who wove the goat's hair and camel's hair into cloth for the nomads' tents His name was Saul At first a persecutor, he was converted and became a Christian. He was a great missionary, who went from city to city teaching the people, and is known to us as the Apostle Paul. He taught that the new religion was not for Jews only, but for everybody in the world, men, women and children. This was glorious news. The humblest workman and even the most wretched slave could share in this religion The gospel spread very rapidly Missionaries, soldiers, merchants, travellers carried the good news along the Roman roads to all parts of the empire.

For a long time the Romans did not trouble themselves about these Christians In Rome there were people of all nations—soldiers, sailors, merchants, travellers, slaves and many more The Romans were used to people who worshipped different gods and they took little notice of them, so long as they joined in the sacrifices to the chief Roman gods and to the emperor. But the Christians refused to worship these gods any longer. The emperor and his nobles could not understand these people Why should they not worship Jupiter and Mars as other Romans did? Who was this King of Heaven of Whom they spoke? Was this King coming to drive the emperor from his throne? They were rebels to the State and they must be put down. First one emperor and then another tried to crush the new teaching by ill-treatment Diocletian, in particular, persecuted the Christians with the utmost cruelty for several years Their property was taken from them, they were forbidden to meet together for worship, and hundreds of them were put to death by torture, or given to the wild beasts in the Colosseum, where thousands of spectators looked on as they were torn to pieces Diocletian hoped in this way to stamp out Christianity altogether

What happened was exactly the opposite of that which he intended The Christians, forbidden to meet in houses, lived underground in caves cut out of the soft rock In time these caves and passages stretched for miles underground outside the city of Rome. They were called catacombs, that is burial places, for in recesses cut in the rocks the Christians buried the mangled bodies of those who had died for their faith, the *martyrs* as they were called

Moreover, those who were put to death showed the most wonderful courage They were so sure that they were going home to their loving Father in heaven that they went to their death gladly; and many other Romans, seeing their faith, declared themselves Christians too.

Christianity continued to spread throughout the empire Many were no longer satisfied to worship the ancient gods, for their religion told them little of what happened after death Christianity taught the beautiful story of the Resurrection and the life to come Diocletian gave up the struggle against the Christians. He became very ill and left the throne for a quiet life in the country (A D 305).

Within a few months there was renewed fighting for the crown. No fewer than six rival emperors were in the field One of these, Constantine, saw that if he would be victorious it would be well to have the Christians on his side, and he showed himself very friendly to them He was as yet a pagan, but his wife and mother were both Christians noted for their zeal in the teaching of the Cross.

Constantine's vision.—The year A D. 313 is a notable date for Christians In that year Constantine won the decisive battle against the strongest of the rival emperors, at the Milvian bridge which crossed the Tiber

about nine miles from Rome. After the victory, he called his army together and declared himself a Christian, and this is the story that is told about him.

On the day before the battle the emperor was sitting about mid-day lost in thought. He knew that all depended on the coming fight. If he lost it, he would be killed. If he were victorious, he would reign alone at Rome. As he sat thus musing, he chanced to glance upward, and there in the sky above him appeared a great flaming cross, with these words on it, "By this sign thou shalt conquer."

All that day the emperor thought over the meaning of the words. That night he had a dream. He dreamed that Christ Himself appeared to him and said, "Constantine, to-morrow let the soldiers bear on your standard the sign of My cross, and they shall have victory."

Constantine obeyed the order. On the day before the battle the cross and the letters which stood for the name Jesus Christ were placed on the emperor's standard. His army won a great victory, and in gratitude he declared himself a follower of Christ, and issued a decree giving all Christians liberty to worship as they would. This is the first great act for which we remember Constantine. No longer were the Christians hunted, tortured and killed. No longer need they hide in the dark underground passages of the catacombs. They were free to live like other people, and free to worship as they pleased. (Some fifty years after Constantine's death the emperor Theodosius passed a decree that all people in the great Roman Empire were to become Christians. The pagan temples were closed and the sacrifices to pagan gods were forbidden. A.D. 392.)

Constantine's new city.—The second great act of Constantine was the founding of a new city. The emperor decided to move his capital from Rome and to build a city which should be a Christian city from the beginning, with churches where men might worship the one true God, instead of temples for the worship of heathen gods such as there were in Rome.

Where was the city to be built? That was the question which puzzled the emperor. We are told that Constantine dreamed again, and in the dream it was revealed to him that the new city was to be built on the site of the old Greek city of Byzantium. This name Constantine changed to "New Rome," but it was soon called "Constantinople," which means "the city of Constantine."

If you look at the map, you will see that Constantinople stands on a narrow strait dividing the Black Sea from the Mediterranean. On the west of it lies the continent of Europe, on the east the continent of Asia. It has been called "The Gateway between the two continents," because all travellers from east to west, or from west to east, had to pass that way. Constantine could not have chosen a more important spot on which to build his new city.

When the site was chosen, the builders came to Constantine. "How wide is the city to be, sire?" they enquired. "I will show you," replied the emperor. He took a lance in his hand and, followed by a great procession, led the way in a vast circle, tracing as he went the line on which the city walls were to be built. "But, sire," exclaimed those who were with him when they saw its size, "no city on earth is so great as this. Surely you have gone too far." "I cannot halt," replied the emperor, "for there walks an invisible Guide before me, and I must go on until He bids me stop."

Inside the great circle which Constantine had made a mighty city was built. It stood on seven hills, which rose above each other in beautiful order. On these hills were erected many fine buildings. We know that besides the citizens' houses there were fourteen churches and fourteen palaces, as well as theatres, baths and a hippodrome, or circus for chariot races like the *Great Circus* at Rome.

To make his new capital still more beautiful, Constantine robbed the cities of Italy and Greece of their best statues and other ornaments, and placed them in Constantinople. In the centre of the city stood a great white marble column on the top of which was placed a statue of the emperor, with a crown of shining golden rays upon his head and in his right hand a sceptre and in his left a globe of the earth.

By A D. 330 all the building was finished Games lasting many days were held to celebrate the founding of the "New Rome," and the emperor gave presents of wine, oil, bread, grain and money to the people.

But the founding of this new city meant that the great Roman Empire was split into two halves, a western half, with its capital at Rome, and an eastern half, with Constantinople as its capital We shall hear later what was the result of this division.

TEACHING HINTS

1. Golden Age.—Special emphasis should be laid on the two hundred years of the *Roman Peace.* Help the children to appreciate the advantages to all the people throughout the empire when they could work without disturbance No other great empire can claim to have had peace for so long a period Elicit from the children how different life was for the Britons when tribal wars ceased and they were prevented from fighting

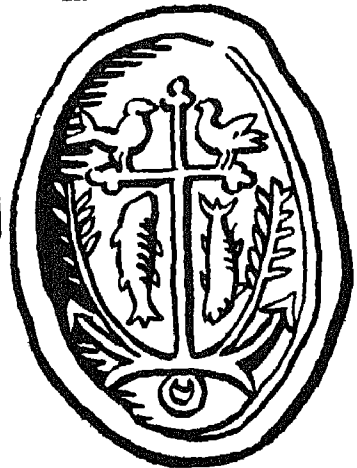
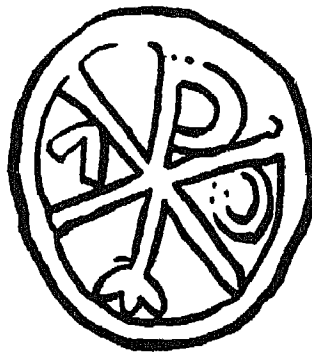
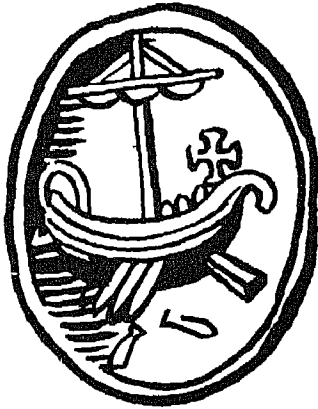
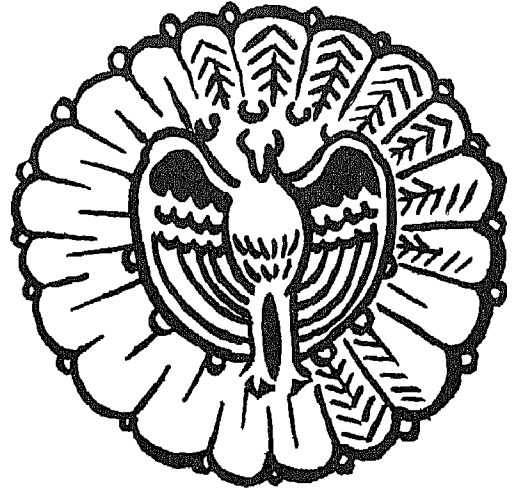
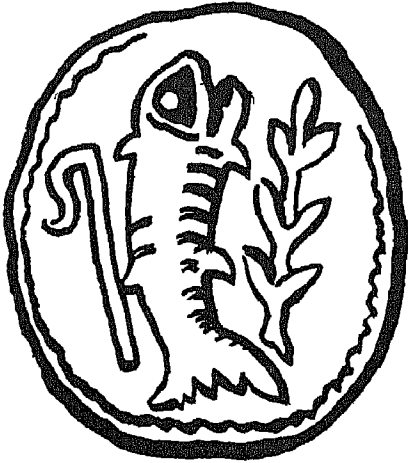
2. Civil war.—Again revise the meaning of this term. See that the children understand how disastrous it was to the empire when the power was in the hands of the legions without one ruling authority.

3. Absolute monarch.—This term should be taught and remembered, as it frequently occurs in history Contrast with the *limited monarchy* of the English sovereigns Revise briefly the story of Rome. from a sheepfold it grew into a town, from a town to a walled city, then to a little nation, a kingdom, a republic, an empire. Note that Diocletian and the emperors who followed him ruled in oriental style. Diocletian retired from the monarchy to his favourite palace at Salona on the eastern shore of the Adriatic Sea He devoted himself to gardening and when he was urged to take up his power again he refused, saying, "If you could see the fine cabbages that I grow at Salona you would not ask me to give up happiness for the pursuit of power"

4. The Christians.—It is quite possible that the children, or many of them, have never read the *Acts of the Apostles,* in which case opportunity should be taken to read certain passages as soon as possible The whole story becomes so much more real when it is associated with the history of Rome. St. Paul's voyage to Rome presents an illuminating picture of a journey by sea in Roman times The importance of such towns as Corinth, Antioch, Athens, etc, in Roman times is made clear when we read of them in the *Acts* The children should understand that the Romans, who saw so many people of different nationalities in the city and each with some different form of worship, would take little notice of the new sect of the Christians It was their refusal to worship the State gods that brought down on them the wrath of the people.

5. Martyr.—Properly a *witness.* One who suffered death as the penalty of refusing to renounce his religion or a tenet, principle, or practice belonging to it It was a title of honour among the early Christians St. Stephen was the first Christian martyr.

6. The catacombs.—This name originally referred to the Christian cemeteries excavated on a certain section of the Appian Way near Rome, but in time it came to be used for all similar burial places. The Roman catacombs, like the pagan tombs, were outside the city walls The Christians did not burn their dead but followed the Jewish custom of burial in subterranean chambers. Later, when the pressure from persecution arose, the

SKETCHES FOR THE BLACKBOARD

EARLY CHRISTIAN SYMBOLS

chambers were used as places of refuge The practice of collective burial spread rapidly, and no fewer than fifty catacombs are now known to exist The catacombs were systems of corridors and small chambers often cut in several tiers one above the other Artificial light was almost always necessary and this was provided by the usual oil lamps of the period. Along the sides of the narrow vaulted corridors in which a man could just stand upright, rectangular niches (*loculi*) were cut one above the other, and in these the bodies were placed, the openings being sealed by slabs of marble or tiles

7. The sacred monogram.—This sign ☧ was supposed to have been seen by the Emperor Constantine on the eve of the battle at the Milvian Bridge in which he overthrew Maxentius It is formed from *Chi* and *Rho* the first two letters of the Greek word Χριστος (Christ=the anointed), and is therefore often called the *Chi-Rho*

8. Early Christian symbols.—Earliest Christian art avoided the direct representation of historical events, and used symbols, types and allegorical scenes One of the chief reasons for this practice was the desire to avoid, at a time when persecution was imminent, the representation of sad or terrible scenes Symbolism, too, was common to the pagan religions of the time, and especially to the mystic religions introduced from the East The more prominent symbols adopted by Early Christian Art are illustrated in the blackboard sketches

The *Fish* was among the earliest symbols of the Saviour, for the Greek Ιχθύς (ikhthus=fish) gave rise to an acrostic, the five component letters standing for the initials of the five Greek words meaning *Jesus Christ, Son of God, Saviour*

The *Ship* is the symbol of the Church in which the faithful are borne safely over the sea of life to the haven of eternity

The *Anchor* is the symbol of hope It is sometimes placed on a fish, to indicate that the Christian's hope is based on Christ

The *Dove* usually represents the soul of the departed. Frequently it bears in its beak an olive branch, which is itself the symbol of peace

The *Palm* in both the pagan and Christian world is the emblem of Victory

9. Memory work.—(*a*) The period of two hundred years of the *Roman Peace* which began with the reign of Augustus is often called the "Golden Age" of Rome (*b*) Civil war broke out in the empire when different legions chose their own generals to be emperors (*c*) Diocletian became emperor in A D 284, and he ruled the empire as an absolute monarch (*d*) The Christians refused to worship pagan gods and were cruelly persecuted (*e*) In A D 313 Constantine the Great issued a decree recognising Christianity as a legal religion (*f*) Constantine built a "New Rome" at Byzantium and the grand city was called Constantinople

10. Exercises.—(*a*) What is meant by the *Roman Peace*? (*b*) What is a civil war? (*c*) What was the cause of the Roman civil wars that followed the "Golden Age"? (*d*) Why was it harmful to the Romans to watch the fights of the gladiators? (*e*) In what ways was Diocletian's rule different from that of any other man who had ruled in Rome? (*f*) How did Diocletian arrange to keep the barbarians out of the empire? (*g*) How was the gospel of Jesus Christ spread throughout the Roman Empire? (*h*) Why did the Romans persecute the Christians? (*i*) Where in Rome did the Christians live during the persecution? (*j*) Why is the year A D 313 a notable date for Christians? (*k*) How did the city of Constantinople get its name? (*l*) Make sentences to explain that —(1) It was bad for the empire when the soldiers had the chief power (2) The Roman republic passed away when Diocletian became emperor (3) The teaching of Jesus Christ spread rapidly throughout the empire. (4) Constantine is chiefly remembered for two great deeds.

IX. ALARIC THE GOTH

PICTURE REFERENCE

Gothic Horsemen in Roman Army

THERE is no particular Class Picture for this chapter, but No 37 in the portfolio, *Wittekind Submits to King Charlemagne,* will be found useful

INTRODUCTION

The barbarians.—We have on several occasions spoken of the barbarians who had been continually threatening the Roman Empire. These barbarians were for the most part descended from a Germanic race, which in early times lived along the shores of the Baltic and in the forests of Germany and Scandinavia

They were a splendid and warlike race, fair-haired and long-headed, with a keen intelligence, great vigour, and a passionate

love of freedom. Family life was held in high honour among them, and they lived comparatively moral lives. Tacitus, the Roman historian, in his *Germania*, written about A.D. 95, has left us an account of these peoples in which he says, "They are content with one wife. No one laughs at vice, nor is it the fashion to corrupt and be corrupted Good habits are here more effectual than good laws elsewhere"

They were divided into a number of tribes, each occupying its own limited territory and numbering not more than twenty-five or thirty thousand souls They lived in villages, each containing about a hundred families under a head man. The villagers were herdsmen rather than agriculturalists, and dwelt in rude huts, which they could easily leave when it became necessary for the tribe to shift its ground in search of new pastures Their love of war and desire for plunder also led the tribes to wander. An entire people, comprising some fifty villages, might set out on a migration, the armed warriors moving ahead, their wives and children following in heavy wagons Each village had its protective band of about one hundred picked warriors, the chief men of the village, and these hundreds when combined made up a fighting force of about five thousand men. In battle the hundreds kept together, and, in spite of lack of discipline, formed terrible fighting units, since each warrior fought in company with his own relatives and friends. The native fearlessness of these German barbarians was such that they rushed into battle with a fierce joy in slaughter that made them irresistible

For several centuries before the Christian era the Germanic tribes had been slowly making their way southward from their northern forest homes. About 100 B C. their progress was arrested by the frontier line of the Roman Empire Several of the tribes actually crossed the boundary, but were driven out by the Roman commander Marius. Thus Rome was saved for the time being, but for the rest of her history she had to cope with the ever-increasing menace of the barbarians' presence on the boundaries of the empire.

The chief of the Germanic races who were thus menacing the empire were the Franks across the Rhine, and the Goths across the Danube and Black Sea. Besides these, there were the Angles and Jutes in Denmark and Schleswig-Holstein; the Saxons along the North Sea coast from the Rhine to the Elbe, the Burgundians round the sources of the Rhine, Rhône and Danube, the Lombards in the valley of the Elbe, and the Vandals in the valley of the Danube.

The decay of the Roman Empire led to a breakdown of the Roman military organisation on which the safety of the frontiers depended. The immediate cause of this breakdown was a lack of precious metals, and a consequent scarcity of money. As the barbarian menace increased, the Roman emperors had adopted the dangerous practice of buying off the invaders, and thus large sums of money and quantities of gold and silver were sent out of the empire. For this and other reasons, there was not enough money to pay the army on the frontiers The troops were paid in land instead of in coin, and they were allowed to settle down on their plots In the joys of home life they lost their military discipline and became mere militia, or "frontiersmen."

When there were no longer well-disciplined legions to keep them out, small bands of barbarians crossed the frontiers. Gradually their numbers increased, and they were allowed to join the ranks of the Roman army. Augustus began the practice of hiring them as soldiers, and by the time of Constantine they formed the majority of the troops The emperor also admitted friendly tribes to farm waste lands, and still others entered the empire as slaves.

In the fourth century the settlement of small bodies of barbarians in the empire gave place to its invasion by an entire people.

The Goths.—The Goths are generally known as the Ostrogoths, or East Goths,

who lived on the northern shores of the Black Sea, and the Visigoths, or West Goths, whose homes were on the Lower Danube in what is now Rumania.

The Goths first appear in Roman history in the third century, during which the emperors were constantly obliged to repel their invasions. One emperor was forced to pay them tribute. Another, Aurelian, surrendered to them the great province of Dacia. From their homes by the Black Sea, Goths raided the sea coasts of Greece and Asia Minor, and it was largely in order to defend the eastern part of the empire against them that Constantine established his new capital at Constantinople.

The Goths who had settled in Dacia and other lands bordering on the empire had come into contact with Roman culture and were slowly becoming Romanised. Many of them had accepted the Arian form of Christianity through the labours of a Gothic bishop named Ulfilas (*c.* A.D. 311-383). For his converts the bishop translated parts of the Bible into the Gothic language, inventing for the purpose a special alphabet from the signs of the Latin and Greek and the old "runes," or mystery writing, of the Nordics. Parts of his translation are still extant, and are of interest as the first recorded examples of a tongue akin to that from which our own is developed. Ulfilas has been called "the father of Teutonic literature."

The peaceful blending of Goths and Romans was rudely interrupted by the sudden invasion of Europe by the Huns. These were a wholly barbarous, nomadic race inhabiting the steppes of Central Asia. They were unrelated to the German tribes, and were essentially an oriental people, with the high cheek bones and deep-set slanting eyes which we associate with the yellow races of the East. In appearance they were so unlike any other peoples that to the Romans they seemed like demons rather than men.

Mounted on small, swift horses, whose backs they rarely quitted even for sleep, these hordes of nomads swept across the lands north of the Caspian Sea, subdued the Ostrogoths, and forced them to join in an attack on their kinsmen the Visigoths. Unable to face the combined forces, the Visigoths appealed to Valens, the emperor of the East, for permission to cross the Danube and settle in Roman territory. In an evil hour for Rome permission was granted, and two hundred thousand warriors with their families crossed the river and made themselves new homes on Roman soil.

The settlement of such a host of barbarians within the bounds of the empire constituted a grave danger to Rome. This danger was increased by unwise governors,

SILVER MEDALLION OF VALENS SHOWING THE IMPERIAL STANDARD OR LABARUM

who ill-treated the fugitives, robbing them of their possessions, withholding supplies and even attempting to murder their leaders. Finally, goaded to desperation, the Goths rose in revolt, and at the battle of Adrianople, in A.D. 378, utterly defeated the Roman army, the emperor Valens being killed in the battle. This engagement has been called "one of the really decisive battles in history." It showed the barbarians that they could beat the Romans in open fight. The Danube no longer acted as an imperial frontier. Swarms of Gothic warriors crossed the river and overran the provinces to the south of it.

The situation was saved for a time by the strong hand of Valens' successor, the emperor Theodosius the Great (A.D. 379-395).

This powerful monarch restored peace in the empire after the half-century of disorder which followed the death of Constantine He was the last Roman emperor to rule both halves of the empire He made terms with the Goths, granting them lands and a yearly allowance and enrolling their warriors in his army as "allies." By this wise policy Theodosius averted for a time the danger of a barbarian invasion of the empire, and earned himself the title of "the friend of the Goths."

Theodosius died in 395, leaving the empire to be divided between his two incapable sons, Arcadius and Honorius Arcadius took the East as his province, Honorius the West. In the same year the Goths had acclaimed a young chieftain named Alaric as king, by the Germanic custom of raising him aloft on a shield amid the shouts of the warriors Alaric had served in the Roman army, where he had shown great military ability On the strength of his successes, he requested to be commander of the imperial forces, and the refusal of his demand converted him into an enemy of Rome. On his election as king, he proceeded to put his hostility into action, for Arcadius refused to pay the yearly wage to the Goths

His first intention was to capture Constantinople but, realising how hopeless such an attempt would be, he turned westward and entered the Balkan peninsula through the famous pass of Thermopylae His soldiers plundered and devastated the cities of Southern Greece, with the exception of Athens, which Alaric entered but left untouched Alaric's victorious advance was checked by an army from the western empire, led by an able general Stilicho, himself a barbarian of the race of the Vandals, a kindred tribe to the Goths Stilicho had been held in high esteem by Theodosius, who had married him to his own niece and had entrusted to him the guardianship of his two sons By his prompt action and military skill he soon defeated the invaders, and the Goths were driven out of Greece, only to cross the Julian Alps and invade northern Italy Stilicho gathered a large force to meet this crisis, recalling the legions from the most distant frontiers, including Britain. His powerful army defeated the Goths and drove them out of northern Italy Their camp, filled with the plunder from the Greek cities, fell into the Romans' hands

The Goths sack Rome, A.D. 410.—The danger, however, was not over The Goths had retired only to recover their strength for a fresh attack Their opportunity came when the incompetent emperor Honorius caused Stilicho, who alone could have saved Italy in this hour of peril, to be executed on a charge of treason. Alaric at once re-entered Italy unopposed and made straight for Rome. He thrice besieged the imperial city, in 408, 409 and 410 During the first siege the populace were starved into submission and compelled to pay a huge ransom Alaric then withdrew from Rome and embarked on negotiations with the emperor Honorius. The negotiations failed, and Alaric again invested Rome and set up a puppet emperor of his own choosing Further negotiations also failing, Alaric began his third siege of Rome, and on 24th August, A D 410, the Goths surrounded the imperial city The gates are said to have been opened to them at midnight by a treacherous band of Roman slaves and servants, and the citizens to have been rudely awakened by the blast of the Gothic trumpets in their streets. A general pillage ensued which lasted for three days and nights Alaric, who was a Christian, had commanded that churches and church property should not be touched and that no blood should be shed In consequence the city did not suffer much material

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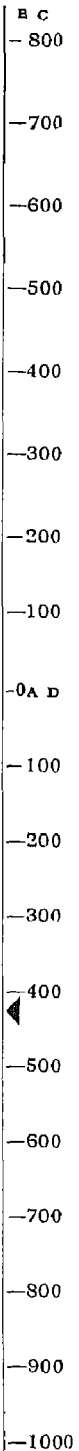

damage by the sack, but morally it was an utter disaster The great mother city of the Roman Empire, which for eight hundred years (since its capture by the Gauls just after 400 B C) had remained inviolate, was now seen to be the ready prey of any resolute barbarian with a force of armed men behind him "The spell of Rome was forever broken"

From Rome the victorious Goths, driving before them their wagons piled high with booty, made their way into southern Italy Their advance was checked by the sudden death of their leader, probably from a fever caught in the Italian marshes The leaderless barbarians traversed Italy once more, and finally settled in southern Gaul and Spain, where they founded a Visigothic kingdom, one of the many independent kingdoms which were set up in the lands once ruled by Rome (A D. 419)

Other barbarian invaders.—Where the Goths had shown the way other barbarian nations were not slow to follow. Stilicho's withdrawal of the legions along the Rhine to meet the Gothic invasion had left that frontier undefended Profiting by this, in A D 406 a horde of Germans crossed the river and overran Gaul, where they established kingdoms for themselves The Burgundians settled on the upper reaches of the Rhine and in south-eastern Gaul. In the next century they were absorbed into the Frankish empire, but their name is preserved in modern Burgundy

The Vandals at the beginning of the fifth century poured into Gaul, and in 409 made their way into Spain. They were soon followed by the Goths, who destroyed half their number and penned the remainder in Andalusia About 428 they crossed over to North Africa, captured Carthage (439) and made themselves masters of the Roman province of Africa, and established a Vandal empire which lasted about one hundred years Of their kings the most famous was Gaiseric, who set himself to form a powerful fleet which for thirty years terrorised the Mediterranean On one of the king's piratical expeditions he sacked Rome (A D. 455)

There does not seem to be in the story of the capture of Rome by the Vandals any justification for the charge of wilful destruction of works of art and architecture which is implied in the word "vandalism" Gaiseric and his son, who were Arians, bitterly persecuted the Catholic Christians; the bishops were banished and the churches of Africa were "widowed" for a generation It is this fierce antagonism which probably gave rise to the charge of "vandalism" In 533 the emperor Justinian despatched a great expedition under the command of Belisarius to overthrow the Vandal dominion. It was completely successful, and the Vandal race disappeared from history

The Franks, who had long owned territory on both sides of the Rhine, settled in northern Gaul Unlike the other German tribes, they had little taste for roving, and penetrated but slowly into the lands of Rome It was not till the end of the fifth century that they began to form the great Frankish empire, which laid the foundations of modern France

The Germanic conquests also extended to the Roman province of Britain The legions had been withdrawn from the island and the Celtic natives were too weak to defend themselves Consequently the land fell a prey to German pirates, and was settled by bands of Angles, Saxons and Jutes, who became the ancestors of the English nation.

Thus by the middle of the fifth century A D, of the great Roman Empire in the west only Italy remained intact The rest, namely, Africa, Spain, Britain and part of Gaul, was in the hands of the German barbarians But at this point the whole of Europe, new German kingdoms and old Roman Empire alike, were obliged to unite in facing the terrible peril of a common foe—the Huns

CHILDREN'S STORY

The Goths.—We have spoken many times of the foreign peoples, or barbarians as the Romans called them, who lived to the north

and east of the rivers Rhine and Danube. The early homes of these people were far to the north, where they lived in villages, keeping cattle and sheep, hunting and fishing, and growing grain. They were a strong and hardy race, for their climate was cold and raw. They were, too, bold warriors, ever ready to plunder richer lands than their own. As they grew in numbers there was not enough food for all, and tribes of them left their northern homes and wandered towards the warmer lands of the south.

You will remember how the Romans had built forts and walls to keep these foreigners on the far side of the rivers, but when the Roman legions quarrelled among themselves they could no longer keep the foreigners back Gradually more and more of them crossed the rivers and settled in the empire So many were allowed to join the Roman legions that by the time of Constantine there were more foreigners than Romans in the army Chief among these foreigners were the West Goths, who lived beyond the Danube, and the East Goths, who lived across the Black Sea

They were a fine race of people, particularly tall and well made, with long fair hair and bold blue eyes. They did not wear the toga, but dressed in linen smocks with leather leggings, and wore gold and silver bracelets about their arms and necks The warriors rode fine horses and carried lances, heavy swords and shields. Many wore coats of mail and shining helmets adorned with the figures of boars, wolves, dragons and other beasts

During the long time that they had lived on the borders of the Roman Empire they had been visited by merchants and missionaries, and had copied the Romans in their manner of living as well as in becoming Christians. Towards the close of the fourth century their peaceful lives were rudely interrupted by terrible invaders called Huns

The Huns.—These were nomads, or wandering people, who lived with their flocks and herds on the wide plains of Asia. We do not know exactly why great hordes of them moved westwards at this time, but probably it was the same cause that generally made nomads wander to new lands—there was not enough food for their flocks and herds The East Goths were terribly frightened when the Huns reached their lands, for the Huns were quite unlike any men they had seen before They were small with yellow skin, black hair and almond-shaped eyes They lived all day, and sometimes all night, on horseback, and when they went to battle they rode so furiously and shot their arrows so fast, that none could stand against them Like a whirlwind they charged down on the East Goths, defeated them in battle after battle, and drove them along as they travelled westwards.

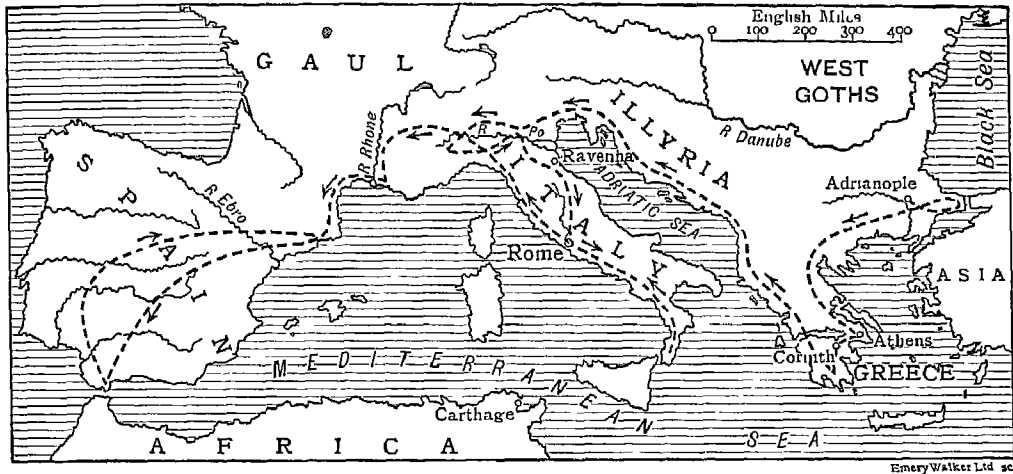
At the news of the coming of the Huns, driving the East Goths before them, the West Goths were panic-stricken They begged the Roman emperor Valens for permission to cross the Danube and settle in the empire The emperor consented on condition that they laid aside their arms before crossing the river. This the West Goths agreed to do, and the whole nation of two hundred thousand set about crossing the river in flat-bottomed boats This was no easy task. The river was swollen by heavy rains, and the water ran so fast that many were drowned Day and night for many days men, women and children flocked to the boats with the few things they could manage to carry along with them. It seemed a kind deed of the emperor to let the West Goths live in the empire, but in the end it turned out very badly for the Romans.

The Roman governors of the provinces where the West Goths settled were not at all pleased to see these rough strangers They treated them very harshly, sold them bad food at high prices, and gave them so little to eat that many were obliged to sell their children as slaves The day came when they would no longer bear this harsh treatment, and they rose in revolt The emperor Valens led an army against them, but at a

great battle at Adrianople the army was defeated and the emperor was slain (A D 378).

This was a terrible day for the empire It showed that the Romans could be beaten in battle by barbarians The new emperor, Theodosius, soon put matters right He treated the Goths so well that he earned the title of "the friend of the Goths." Many of them rose to high positions in the army, and another barbarian, Stilicho, a Vandal, was held in such high honour by Theodosius, that he gave him his niece in marriage and made him the guardian of his own two sons, Arcadius and Honorius

Alaric was not friendly to Rome. He had served in the Roman army and had done so well that he asked to be made commander of all the Roman forces. When his request was refused he led the Goths to battle against the Romans. His first plan was to attack Constantinople, but he saw that this city was too well defended, so he advanced into Greece where he knew there were many rich cities

At first Arcadius, who was a weak emperor, did nothing to stop Alaric and his men. The Greek cities opened their gates to save themselves from destruction The

ROUTE OF ALARIC AND THE WEST GOTHS

When the emperor died the empire was divided between the sons. Arcadius ruled in the east and Honorius in the west, but they soon quarrelled with each other, and just at this time the Goths rose again in rebellion.

Alaric.—The leader of the rebellion was called Alaric, whose name means *Ruler of all* He had been chosen king in the same year as the two emperors (A.D. 395). Amid great rejoicing, the young chieftain had been raised aloft on a shield so that all might see their new ruler, while the warriors clashed their shields and shouted aloud

conquerors took all they wished but they spared the city of Athens Meanwhile, in the west, Stilicho had been gathering a strong army He marched against Alaric and forced him to leave Greece With their wagons piled high with plunder the Goths made their way northwards to Italy, for in Rome were to be found the finest treasures in the world Alaric's men followed him gladly, for he told them that he had many times heard a voice saying, "Alaric, you shall take Rome"

The whole empire was panic-stricken. No such danger as this had threatened Rome since the time, eight hundred years

before, when the geese in the temple saved the Capitol by their cackling. Stilicho sent out messengers on swift horses to summon the legions to defend Rome. From the farthest boundaries of the empire they came, from Spain and Gaul, from Asia Minor, from the far East, and even from the western island of Britain. With this great army Stilicho defeated the Goths and drove them from Italy as he had driven them from Greece.

The Goths were beaten, but not crushed. Still in their leader's ears sounded the mysterious voice, "Go on and take Rome." The Goths began to prepare once more for battle. They dared not invade Italy again while Stilicho was guarding the land. One day news came from Italy at which all the Goths rejoiced. The foolish emperor Honorius had quarrelled with Stilicho, the man on whom alone depended the safety of the empire, and had caused him to be executed.

There was no one now to stop the Goths from invading Italy. Once more they swarmed into the land, and made straight for Rome. The feeble emperor, hearing that they were approaching, fled to his farm at Ravenna, on the far side of the mountains, where he spent his time among his pet chickens, with little thought of the terrible doom which overshadowed Rome.

How Rome was taken.—Alaric thought that the best way to take Rome was by the weapon of hunger. His soldiers surrounded the great city, and kept watch over the country all around and along the banks of the river Tiber to see that no one brought food to the unhappy people within. Soon there was nothing to eat, and the people fell sick, till at last, when it was impossible to hold out any longer, a number of the Roman senators were sent to make terms with Alaric.

They found the king in his tent surrounded by his bodyguard. At first the senators tried to frighten him by telling him that there were thousands of armed men in Rome, and that if he did not raise the siege these citizens would come out to battle in great numbers. But Alaric laughed at their threats. "The thicker the hay, the easier it is mown," he said grimly.

Then the Romans tried to make terms with him. "What will you take," they asked, "to raise the siege?"

"All your gold and silver," was the reply, "all your treasures and all your foreign slaves."

"What then, O king, do you intend to leave us?" asked the senators pitifully.

"Your lives," replied the hard-hearted conqueror.

In the end, however, Alaric promised to raise the siege if the Romans would pay him the strange ransom of 5,000 lb. weight of gold, 30,000 lb. of silver, 4,000 silken tunics, 3,000 hides dyed scarlet, and 3,000 lb. of pepper. The people hoped that by paying this huge ransom they had saved their city, but Honorius, who all this time had been quite happy with his pet chickens, now suddenly began to quarrel with Alaric and, after two more years, the king of the Goths grew angry and his men surrounded Rome once more.

The senators planned to defend the city, but the story is told that while they slept slaves crept out at midnight and opened the gates to the Goths. They marched in, and the good folk of Rome were rudely awakened by the terrible sound of the Gothic war trumpets. The beautiful city, after eight hundred years, had at last fallen, and the promise which the mysterious voice had made to Alaric had come true. A.D. 410.

An old story tells how when the Goths entered Rome, a messenger was sent post haste to tell Honorius the terrible news. "Rome has perished!" he gasped. "Rome perished?" exclaimed the emperor, thinking at once of his precious chickens, "Why, only an hour ago she was feeding from my hand." He thought that the messenger was speaking of his favourite hen, named Rome, and was greatly relieved that the city and not the bird had perished.

For three days and three nights the Goths plundered Rome. The citizens were obliged to stand by and see their furniture, gold and silver plate, and rich clothing carried out of their houses and piled high in the Goths' wagons They themselves, however, were unhurt, for Alaric, who was a Christian, had given orders that no blood was to be shed. He also commanded that churches and all that was in them were to be left alone

The story is told that a certain Goth broke into the house of an old woman whose work was to look after the church of St Peter.

"Show me your treasure," he commanded. "Certainly," she replied, and she led him to a place where were stored beautifully worked golden cups, bowls and plates While he was looking at them with delight, rejoicing at the fine prize which he had secured, the old woman said quietly, "They are the sacred vessels of the church of St Peter If you touch them, the thought of your evil deed will always lie heavy on your heart."

The Goth trembled at her words, and went to Alaric to tell him what he had found The king at once ordered the sacred treasures to be taken to St Peter's church and guarded there. Then a strange procession was formed Through the streets in battle array marched the Goths, protecting with their glittering spears their Christian comrades These carried on their heads the shining golden vessels, and as they went they sang psalms Many Roman Christians joined the procession and found safety in the church.

Death of Alaric.—Rome was not destroyed, but all the world had seen how weak the empire had become The barbarians were no longer afraid One tribe after another crossed the boundaries of the empire and settled in the lands that had belonged to Rome.

Alaric died of fever in 412, when he was only thirty-four years old. The Goths wished to keep the place of his burial secret, so that the Romans might not find and disturb his grave. Accordingly they turned aside a small river, and there in the river bed Alaric was buried sitting upright among all his arms and treasure. The river was then brought back to its proper course, so that its waves rolled over the grave of the great chief The slaves who had done the work were all killed so that the secret of Alaric's grave should be kept for ever, and to this day no one knows where he lies.

After the death of their king the Goths left Italy and ultimately founded a kingdom in southern Gaul and Spain

TEACHING HINTS

1. Map.—For this lesson a map of Europe is indispensable. Point out the lands first occupied by the barbarians in Europe. Get the children to understand how the cold climate of the north helped the people to become strong and hardy Show where lay the lands of the Goths and Huns A sketch map for the blackboard will be needed when speaking of the march of Alaric

2. The Roman army.—The practice begun by Augustus of enlisting barbarians in the army completely changed its character It was no longer the well-drilled and disciplined army which had proved invincible under Julius Caesar. The time came when men of the same race fought against one another under different leaders This naturally often led to treachery

3. Nomads.—Children who have been through the courses for the first two years will be familiar with this term. See that they understand how serious it would be for a pastoral tribe in a specially dry season. It has been suggested that one cause of the westward movement of the Huns was the gradual drying up of Central Asia. Note that the Huns entered Europe by the "Gateway of the Nations," which lies open between the Caspian Sea and the southern extremity of the Ural Mountains.

4. Adrianople.—Point out the importance of this battle (A.D. 378) The Romans were no longer invincible. The barbarians soon took advantage of the knowledge, and were not again afraid to meet the Romans in battle

5. Alaric in Greece.—The Goths entered Greece by the famous pass of Thermopylae where Leonidas and the Spartans once held the Persians at bay. (See Vol. I.)

6. Pepper.—The children will probably ask why Alaric should demand as tribute such a large quantity of pepper Explain that in those days meat could not be kept in cold storage or in refrigerators as it is to-day, and therefore it quickly went bad. The result was that it had a high flavour, and could be eaten only when liberally seasoned with spices, and especially with pepper This explains why spices were valued so highly in Europe and elsewhere.

7. Memory work.—(*a*) The chief barbarians who invaded the Roman empire were the West Goths and the East Goths (*b*) When the Huns invaded Europe the emperor Valens allowed the West Goths to cross the Danube and live in the empire (*c*) The Goths were so harshly treated that they rebelled and defeated the Romans at Adrianople. (*d*) Alaric king of the Goths led his men into Greece and then to Italy. (*e*) In A D 410 Alaric captured Rome, and after that the barbarians settled freely in the empire.

8. Exercises.—(*a*) Why did the barbarians of northern Europe leave their homes and travel southwards? (*b*) How had the Roman army changed since the days of Julius Caesar? (*c*) How had the Goths become more civilised? (*d*) Why did the West Goths ask to be allowed to enter the empire? (*e*) Why was it an evil hour for Rome when the emperor allowed the Goths to cross the Danube? (*f*) What was the cause of the battle of Adrianople? (*g*) Who was Alaric? (*h*) Where did Alaric first lead his men? (*i*) Who was Stilicho? (*j*) What did Stilicho do for Rome? (*k*) What did Alaric mean by the words, "The thicker the hay, the easier it is mown"? (*l*) Why was it a good thing for Rome that Alaric was a Christian? (*m*) How did the Goths make sure that Alaric's burial place should not be found? (*n*) How can you tell from this story that:—(1) The Huns were a terrible enemy? (2) Alaric was not specially cruel? (3) Honorius was a weak emperor?

Cup from Herculaneum

X. ATTILA THE HUN

PICTURE REFERENCE

[*From a Chinese Drawing*

A MONGOL

THE Class Picture for the Children's Story (No. 33 in the portfolio) shows St Geneviève encouraging the men of Paris It is illustrated on page 116. Another suitable Class Picture for the stories is the *Hut-wagon of the Mongols*, No 43 in the portfolio

INTRODUCTION

The Huns.—The gradual settlement of the western empire by the Germanic tribes was, as we have seen, hastened in the fourth century A D by the invasion of a race of

nomads from central Asia. These eastern peoples had for many years been on the move in Asia, and about A D 372 a vast horde of them known as the *Huns* made their way into eastern Europe from their home in the steppes, north of the Caspian Sea. They invaded the territory of the Ostrogoths, reduced them to submission, and enlisted them in their service The Visigoths, as we have seen, fled from the advancing Huns across the Danube For some fifty years the Huns pushed their conquests no farther, contenting themselves with overpowering the smaller tribes living north of the Danube, and even on occasion lending their aid to the Romans against their enemies.

A Roman historian, Ammianus Marcellinus, who lived during this period, has left us the following account of the Huns:

"They never shelter themselves under roofed houses, but avoid them as people ordinarily avoid sepulchres, as things not fitted for common use. Nor is there even to be found among them a cabin thatched with reeds, but they wander about, roaming over the mountains and the woods, and accustom themselves to bear frost and hunger and thirst from their very cradles . . They wear linen clothes, or else garments made of the skins of field mice . . . After a tunic is once put round their necks it is never taken off or changed till, from long decay, it becomes actually so ragged as to fall to pieces. They cover their heads with round caps, and their shaggy legs with skins of kids; their shoes are not made on any lasts, but are so unshapely as to hinder them from walking with a free gait And for this reason they are not well suited to infantry battles, but are nearly always on horseback, their horses being ill-shaped but hardy . There is not a person in the whole nation who cannot remain on his horse day and night On horseback they buy and sell, they take their meat and drink, and there they recline on the narrow neck of their steed and yield to sleep so deep as to indulge in every variety of dream. When any deliberation is to take place on any weighty matter, they all hold their common council on horseback. They are not under the authority of a king, but are content with the irregular government of their nobles, and under their lead they force their way through all obstacles"

Describing their mode of life, Ammianus says, "None of them plough, or even touch a plough handle; for they have no settled abode, but are homeless and lawless, perpetually wandering with their wagons, which they make their homes; in fact, they seem to be a people always in flight Their wives live in these wagons, and there weave their miserable garments, here, too, they bring up their children till they reach mature years."

The Huns in war.—"Sometimes when provoked they fight, and when they go into battle, they form in a solid body, and utter all kinds of terrific yells They are very quick in their operations, of exceeding speed, and fond of surprising their enemies. With a view to this, they suddenly disperse, then reunite, and again, after having inflicted vast loss upon the enemy, scatter themselves over the whole plain in irregular formations, always avoiding a fort or an entrenchment"

Of their ferocity and skill in warfare, he says, "In one respect you may pronounce them the most formidable of all warriors, for when at a distance they use missiles of various kinds, tipped with sharpened bones instead of the usual points of javelins, and these bones are admirably fastened into the shaft of the javelin or arrow, but when they are at close quarters they fight with the sword, without any regard for their own safety, and often while their antagonists are warding off their blows, they entangle them with twisted cords, so that, their hands being fettered, they lose all power of riding or walking"

These extracts give a vivid picture of the primitive savagery of these fierce hordes which had poured into eastern Europe, and threatened to swamp civilisation in a tide of barbarism

Attila.—In A D. 433 the leadership of the Huns was divided between two brothers, Attila and Bleda. Of the two Attila was the more forceful, and he at once resumed the career of conquest begun so long before. In 445 Bleda died and Attila became sole ruler. By his rude genius he united the Huns into a formidable fighting force, and compelled the Roman emperor to pay a heavy price for peace. The year 448 was occupied with various negotiations, messengers passing to and fro between Constantinople and Attila's headquarters, a royal village on the Danube. One of the Roman ambassadors was Priseus, the Byzantine historian, who wrote an account of his experiences of which unfortunately only fragments have been preserved He tells us of the ambassadors' visit to the Hunnish court where they were entertained with banquets and acrobatic displays, and presented on leaving with a steed apiece, horses being the greatest treasures of the Huns.

Attila invades Gaul.—In A D 451 negotiations between the Huns and the Romans finally broke down and Attila and his hordes entered the Roman province of Gaul. The whole civilised world was in a panic, which increased as one Roman municipality after another fell before the Huns. Paris itself, then little more than a village, between the two arms of the Seine, was overlooked by the Huns, and the name of St. Geneviève is associated with this great deliverance, which was considered as an answer to her prayers. But Tongres, Metz, and many another town fell before the conqueror, who finally besieged the important city of Orleans, which commanded the passage of the Loire.

Meanwhile, the Romans and the Goths had made an alliance against the common danger, and a Romano-Gothic army, supported by various barbarian tribes which had reason to dread the Huns, advanced to the relief of the besieged city.

The Roman army was led by Aetius, a Roman general of barbarian race, who had spent some years as a hostage, first with Alaric and the Goths and later in the camp of the Huns During these periods he had studied the military tactics of both nations, and was thus well qualified to lead an army against the mixed horde of Huns and Ostrogoths which had invaded Gaul His allies, the Visigoths, were led by their king, Theodoric.

On the approach of the Romano-Gothic forces Attila raised the siege of Orleans, led his hordes across the Seine and awaited battle in the level plain between Châlons and Troyes in north-eastern France The engagement which followed, popularly known as the battle of Châlons (20th September, A D 451), has been justly described as "a battle of nations" The Romans and Visigoths, with their following of Germanic tribes, were opposed to the Huns, with their unwilling allies the Ostrogoths, constrained by their allegiance to the Huns to attack their own kinsmen, and a corresponding Germanic following Before the battle Attila harangued his motley troops, and the Gothic historian Jordanes quotes what purports to be part of this speech Whether genuine or not, it represents fairly the mentality both of Attila and of the troops which he was addressing:

"You are warriors or nothing," he cried, "and what to such is more satisfying than to carve out his vengeance by the sword? Ah! Revenge! nature's first gift, and sweetest soother of the soul! Let your feet then be swift to the attack, since ever is the attacker the bolder Heed not that mongrel mass of foreign speech, who but prove their fear by herding together Look at them! Look! How even before our first charge they are swayed to and fro from fear. . . . You need no telling as to the flimsiness of Roman defence. . . . Be your old selves,—charge with your unflinching courage, laugh at their fortifications On against Visigoth and down with the Alans! Huns of mine, renew your rage and let your fury swell as of old . . . The first am I whose shaft shall be sped, and doomed is

he who fights not when Attila leads the fight"

Inspired by this savage eloquence, the Huns rushed on their foes and at first carried all before them. The Gothic leader Theodoric was killed Then the tide of battle turned in favour of the Romans and their allies, and after a terrible slaughter in which thousands fell on either side they gained the day The victory of Châlons was the last triumph of the last army of the Roman Empire. But the Huns were only checked and not crushed Aetius dared not allow the Goths to storm the Hunnish encampment and complete the victory, lest these barbarian allies of Rome should become too powerful in their turn, and should themselves rise in revolt. Accordingly Attila was tamely allowed to escape The Goths returned home, and the Huns continued their destructive march into Italy

Attila in Italy.—Here the story of Gaul was repeated One Italian town after another fell before the advancing Huns Many of the terror-stricken inhabitants sought refuge on the islands in the Adriatic Sea, off the north-east coast of Italy, and thus founded what became eventually the great republic of Venice. It is strange to think that so magnificent a State should have owed its birth, however indirectly, to the destructive raids of the barbarians.

Attila had intended taking Rome, but his own superstitious fears, the mediation of Pope Leo I., and an outbreak of disease among his hosts, induced him to return to his home on the Danube. There, in the midst of the festivities celebrating his marriage with a youthful wife, Attila died. His empire broke up, and the Huns became absorbed by the peoples they had once ruled, or returned to their Asiatic home Their memory is preserved in the name of Hungary, the land of the Huns

There was no further outside interference to prevent the settlement by the Germanic invaders of the Roman Empire in the west The eastern portion of the empire still continued under a strong and successful government till A.D. 1453, when Constantinople fell before the Turks, but the western portion broke up into a series of barbarian kingdoms which gradually ceased all obedience to Rome, until in A D. 476 the last western Roman emperor, Romulus Augustulus, was deposed, and the settlers began to develop independently into the nations of Europe as they are to-day.

The rise of the Roman Church.—In studying the history of the barbarian invasions, one salient fact emerges—the rising power of the Church. This power, as was only natural, centred itself most strongly in Rome, the city toward which men had so long looked as the centre of the empire The Bishop of Rome became known by the distinguishing title of "Pope" The name, from the Greek *pappas* meaning "father," was originally applied to all priests, but was gradually confined to the supreme pontiff of Rome The Popes were held in the highest respect and reverence, even by the rude barbarians. It was the mediation of a Pope which saved Rome from destruction by the Goths, a Pope prevailed upon Attila to leave the city unmolested, and a Pope mitigated the fury of the pillaging Vandals

Thus the civilised world came to look upon the Church as a new protection, able to keep the savage tribes in check now that the Roman Empire could no longer control them.

Life in Europe after the barbarian invasions.—Classical civilisation was thrown into disorder by the descent of the barbarians on the Roman Empire, and their establishment of independent kingdoms in its provinces The invaders were ignorant, uncouth in their behaviour and profoundly indifferent to all pursuits except fighting and such gross pleasures as eating and drinking In their dress, their way of life, their laws and their languages they were totally unlike the Romans They instinctively hated and often destroyed the traces

of Rome. Even when they settled peacefully in the new lands, they set up their own tribal organisation in place of that of Rome They failed to keep the roads and bridges in repair, and allowed the public buildings, such as theatres and baths, whose uses they did not appreciate, to fall into decay Schools, libraries and universities were not needed by these illiterate peoples, and were therefore closed down All industries declined except those which provided the simplest necessaries of life, and trade consequently decreased Indeed much of western Europe—Britain, Gaul and Spain in particular—relapsed into a condition bordering on barbarism

Yet the invasions in some respects made for progress Classical civilisation was in a state of decadence The new races contributed to it their vigour and youth, and infused new life into it Thus they completed the work which Christianity had begun of re-creating human society.

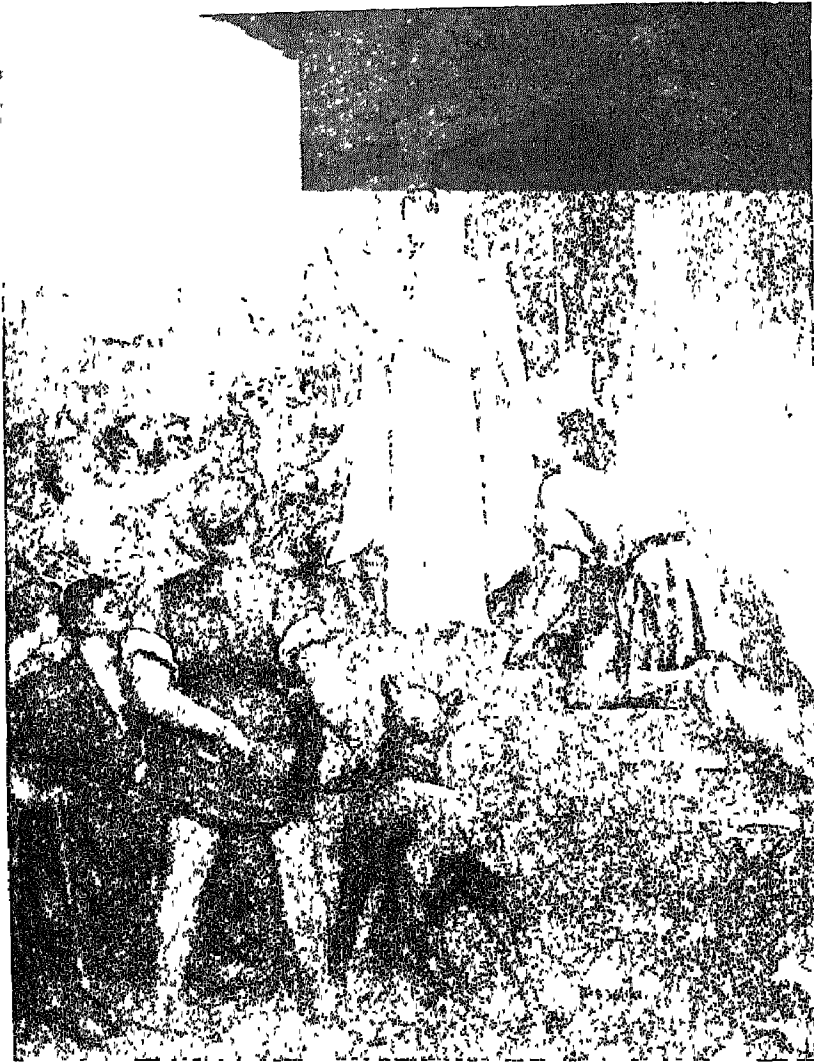
CHILDREN'S STORY

The Huns.—You will remember that the Goths were obliged to cross the Danube to escape from their enemies the Huns These fierce barbarians did not belong to the same race as the tall, fair Goths. They were small yellow men with flat noses and deep-set burning eyes set slant-wise in their heads They wore a strange dress, too, a single garment made of linen, or the skins of field mice sewn together, and once they had put it on they never changed it, but wore it day and night till it fell to pieces On their heads they wore round caps, on their legs gaiters of kidskin, while their shoes were so badly made that they found it hard to walk in them This, however, did not matter, for these terrible little men lived on their horses and rarely walked anywhere On horseback they ate and drank and held their councils of war; on horseback they bought and sold, and sometimes when they were very tired they would lie down on their horses' necks to sleep. Altogether they seemed to the peoples whose lands they invaded more like demons than men

They lived a wandering life, and rode through the country fighting as they went, with their women and children travelling behind them in wagons. They ate no bread, but lived chiefly on meat, and this made them such fierce fighters that when they rushed into battle in a solid body, uttering terrific yells, even the brave Goths could not stand against them

After the Huns had conquered the East Goths and driven the West Goths across the Danube, they remained for many years in the lands north of the great river. During these years there was friendship between the Romans and the Huns, though the Romans were always in fear of the little yellow men and even paid them large sums of money to stay in their own lands, and not to trouble Rome In return, the Huns sometimes helped the Romans against their enemies.

Attila, king of the Huns.—In A D 433, a new ruler appeared who was determined that the Huns should become a great nation and conquer many lands This new king of the Huns was named Attila A Gothic writer said of him that he had a large head with grey hair, a swarthy complexion, small deep-set eyes which he had a habit of rolling fiercely to frighten his enemies, a flat nose, a few hairs in the place of a beard, broad shoulders and a short square body Like all the Huns, Attila lived on horseback, and he rode so fast and furiously that it was said that "the grass never grew again where once his horse had trodden"

Gradually he led his people, hundreds of thousands of men, women and children, through Asia into Europe Wherever he went, he left behind him smoking cities and dead bodies, for the Huns killed and burned for the sheer love of doing harm In later years men spoke of Attila as the "Scourge of God," for they said that God used him as

St Genevieve encourages the Men of Paris

(Class Picture No 33 in the portfolio)

a scourge or whip to punish the weak and idle Romans

It seemed as if the Huns would conquer the whole world, burn all its cities, and force men to go back to the savage life which the Huns themselves lived. The emperor at Constantinople was so greatly alarmed that he sent two of his chief men to Attila's court to try to make peace

Attila and the ambassadors made a treaty by which the emperor was to pay the Huns money, and they in return were to help him against his enemies But the cunning Attila did not keep this treaty any longer than he pleased So soon as his army was strong enough he invaded Gaul, which, as you know, belonged to Rome, and was full of Roman cities

The Romans were in despair They knew

that their soldiers alone could not possibly save Gaul from the Huns. But the Goths came to the rescue They had learnt to like city life, and they did not at all wish to be conquered by the Huns and to go back to the savage life again. They joined the Romans, other tribes followed their example, and soon a large army was marching to Gaul to save it from the Huns The Romans were led by a skilful general who had once been a prisoner in the camp of the Huns, and so knew how best to meet them in battle The Goths, too, had a brave leader in Theodoric, the son of Alaric.

The siege of Orleans.—Meanwhile, the Huns had encamped round the Roman town that is now called Orleans, and were trying to take it The citizens were at first almost too terrified to fight, until their bishop, whose name was Anianus, by his brave words gave them courage to defend their city

But day by day the Huns attacked more fiercely, till at last it seemed that Orleans could hold out no longer All the citizens except those who were guarding the walls fell on their knees and, with tears and loud cries, implored God to save their city from the Huns. Only Anianus was calm "Go to the city walls," he said to a messenger, "and see if help is coming" The messenger went, and returned again "I see nothing," he reported "Go again," said the bishop. For the second time the messenger brought back the same answer, "I see nothing" "Go a third time," said the bishop calmly This time back came the messenger in haste. "On the far horizon I see a small cloud," he cried "It is the aid of God!" exclaimed the bishop All the people echoed his cry and crowded to the walls, to watch the cloud of dust which each moment became larger as it drew nearer At last the dust was blown aside by the wind, and the rejoicing citizens saw the banners of the Romans and the Goths and the shining spears of the great army which had come to their rescue.

The battle of Châlons.—Then took place the noted battle of Châlons. At first the Huns were victorious. The leader of the Goths was slain, and Attila looked upon victory as certain But Theodoric's place was taken by his young son, who formed again the scattered ranks of the Goths, and once more Romans and Goths fell on their enemies. Thousands of warriors were slain on both sides, but in the end the Huns were defeated and driven back to their camp of wagons The Goths longed to rush in and put an end to Attila's power for ever. But the Roman general dared not allow it, for he feared that if the Goths gained the victory, they in their turn might become too strong and overcome the Romans So Attila and his Huns were allowed to escape, and went on their way killing and burning till they came to Italy. In Italy, as in Gaul, they drove all before them, and destroyed many of the chief cities Some of the inhabitants fled to the mountains Others took refuge on the mud banks which lie on the border of the shallow Adriatic Sea, and there a great city grew up which we now know as Venice.

How Rome was saved.—Attila intended to sack Rome itself, but his friends implored him not to do so They remembered that Alaric had died soon after taking the city, and feared lest a similar fate might befall Attila if he entered Rome While he still hesitated, he saw coming toward his camp a solemn procession It was made up of the chief men of Rome, and at their head marched a grand and stately figure in magnificent robes This was Pope Leo I, the Bishop of Rome He was the greatest man in the whole Christian Church, which by that time had spread far and wide He was the father of all the churches, and for that reason bore the title of Pope, which comes from a Greek word meaning father

When the heathen king saw this great procession coming toward him, he was filled with awe and wonder When he heard

the stern words of Pope Leo telling him that it was not God's will for him to take Rome, he promised to leave Italy.

This story shows that, although the Roman Empire had grown too weak to protect those who were in danger, they had found a new power which could save them—the power of the Christian Church. There were no longer any Roman legionaries to keep the barbarians in order, but there were instead popes and bishops to persuade them to keep the peace.

The end of Attila.—Soon after this, Attila, old man as he was, decided to add yet another wife to the large number which he already possessed. She was a beautiful maiden called Ildico, and they were married with great rejoicing But the morning after the wedding, the Huns found Attila lying dead and Ildico weeping or pretending to weep by his side She said that he had been taken ill and had died in the night, but whether she spoke the truth, or whether she had killed her husband no one could tell

The Huns laid Attila's body in a coffin made of gold; the golden coffin was put in a silver one, and the silver coffin in an iron one. Slaves dug a secret grave by night, in which they laid the coffin heaped with jewels, and covered it up Then, when all was done, according to the cruel barbarian custom of which we heard in the last lesson, the Huns killed the slaves, so that no one might know where Attila's body was buried.

After Attila was dead, the Huns had no leader, they settled among the people whom they had conquered and learned to live in cities. All over the lands that once belonged to the western Roman Empire barbarian tribes were settling down in this way and becoming nations, whose history we shall follow in later stories The two most important were the *Franks* who lived in part of France and Germany, and the *Angles and Saxons* who lived in Britain

TEACHING HINTS

1. Map.—Draw a sketch map of the Roman Empire and show approximately the route taken by the Huns in their journeys from Central Asia to Gaul and Rome. Point out Orleans, the river Danube on the banks of which Attila built his wooden town, and Venice.

2. Goths and Huns.—Explain that the Goths and the Huns were at different levels of development. The Goths had learnt, probably from the Romans, how to work metals, to weave, to read and to write and to lead lives of a certain degree of comfort The Huns, on the other hand, had no possessions beyond the bare necessaries for food and clothing, and looked upon all the gifts of a settled life—houses, ornaments, and even cultivated lands—as things to be hated and destroyed

3. Attila's sword-god.—There are many legends connected with Attila. We are told that the only god Attila worshipped was a sword thrust into an altar The story of how he came by it is as follows —One of the Huns' shepherds had a cow who had hurt her foot, so that it was bleeding and leaving drops of blood wherever she went. The shepherd followed the blood trail, and came upon the point of an old rusty sword buried in the ground He dug it up and took it to Attila "This sword shall be my god," said the king of the Huns He had a great altar built of faggots, into which he thrust the sword, and thither he came once a year to worship, and to offer to his strange god a sacrifice of sheep and cattle, and one out of every hundred prisoners he had taken in war. Small wonder that peaceful nations feared a man whose only god was his sword.

4. Memory work.—(*a*) The Huns, who came from far-off Asia, were a more fierce and less civilised people than the Goths.

(*b*) They invaded western Europe and besieged the town of Orleans (*c*) The Romans and Goths gathered together and with the help of the Christian Church drove the Huns away. (*d*) As the Roman Empire grew weaker, the Christian Church grew stronger, and the Romans began to look to the Pope rather than to the soldiers of Rome for help against the barbarians

5. Exercises.—(*a*) Why were the Huns greatly feared by the Goths and Romans? (*b*) Who was the noted leader of the Huns? (*c*) Describe this man (*d*) Describe his court (*e*) Why did the Romans and Goths join their armies to fight against the Huns? (*f*) What happened at the battle of Châlons? (*g*) How was Venice founded? (*h*) Why did not Attila take Rome?

6. The Legend of St. Geneviève.—(See also Volume VI, page 480.) While the terrible Huns were making their way westward across the plains of Europe, a little girl named Geneviève was living with her parents in that part of Gaul which we now call France. Their home was in a village on the banks of the river Seine, eight miles north of Paris At the time of our story Paris was a small town lying between two arms of the river, but to-day it is a great city and the capital of France.

Geneviève's parents were simple folk who led quiet country lives Her father worked in the fields, while at home his wife cooked and spun and made clothing for the household Their greatest treasure was their little daughter Geneviève, who was as quick-witted as she was good Both her parents were Christians and they brought her up to love God and to serve Him truly By the time she was six years old, she had learnt to be so wise and careful that she was allowed to take charge of the sheep In the morning she would drive them to fresh pastures, and sit all day watching them in the quiet fields, thinking holy thoughts of God, and musing on the stories of saintly men and women of whom her mother had told her. Then at nightfall she would drive the flocks to their fold, and return to her cottage home.

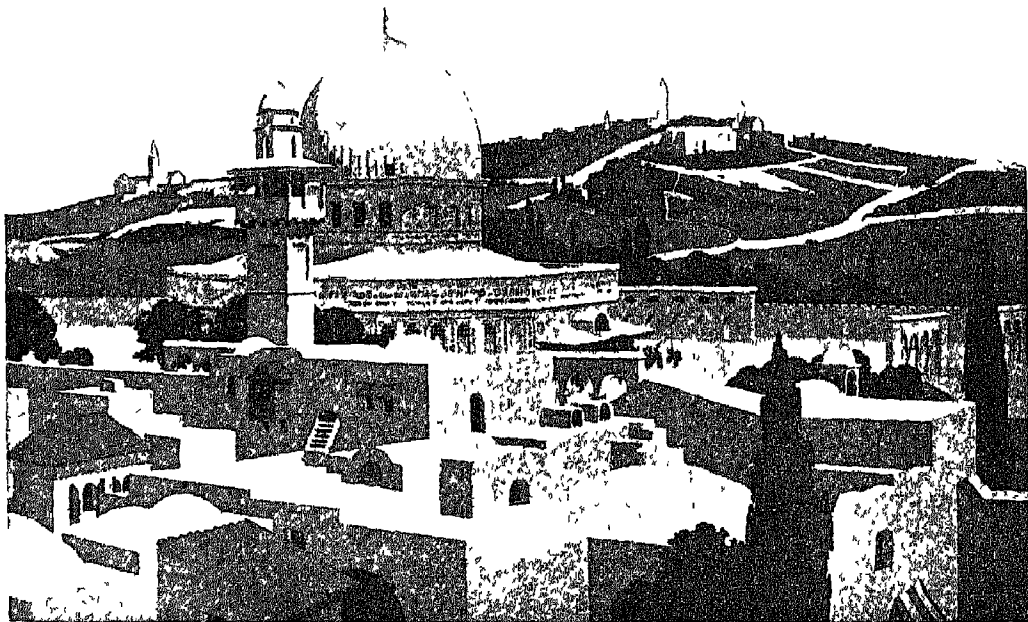
Geneviève's life went on quietly till she was fifteen years old Then a great sorrow befell her Both her parents died, and Geneviève, now an orphan, was taken to live with her godmother in Paris In her new home she became known and loved by all for her goodness, her gentleness and the many acts of kindness to which she was led by the desire to serve and please God

It was at this time that Attila and his Huns reached Gaul and rode through the land destroying as they went, and filling all men's hearts with terror. When news came that the terrible Huns were moving toward Paris, the people were panic-stricken, and their only thought was how to escape from the coming danger. Gathering their possessions, they prepared for flight. But the heart of Geneviève remained calm and confident

She persuaded the frightened people to listen to her, and told them that there was no need to flee. "God will protect our town," she declared "He will not allow the enemy even to come near it Why, then, leave the city when there is no danger?" At first the people would not listen They called her a witch, and cried that she was plotting with the Huns to deliver the city up to them. But the bishop of Paris protected her, and she continued to urge the people not to leave the town.

In time her courage and confidence put their cowardice to shame, and they returned to their homes There they armed themselves in readiness for the coming of the Huns, at the same time praying to God that if it were His will the town might be saved Their prayers were soon answered, for news reached Paris that the Huns had been defeated at the battlefield of Châlons, and driven out of Gaul Paris had been saved without any man striking a blow Geneviève was the heroine of the day, and from thenceforth was held in honour for her wise counsel The citizens believed that it was her prayers which had saved the town.

XI. SAINT BENEDICT

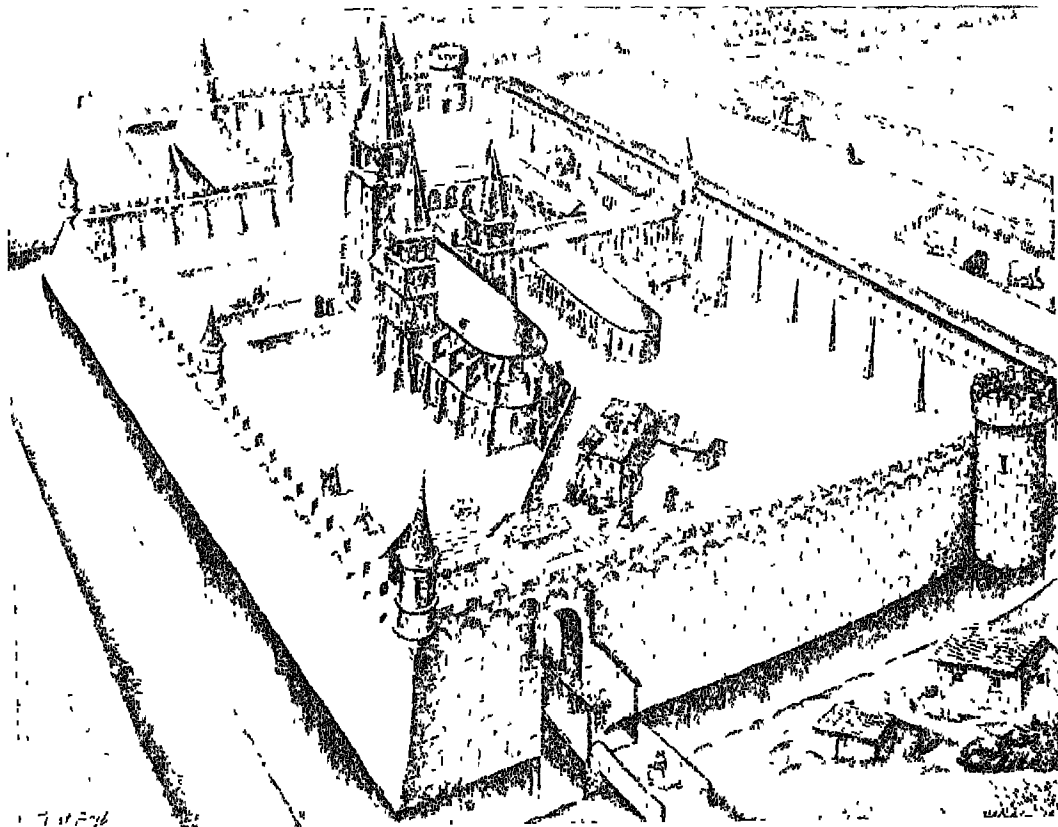
PICTURE REFERENCE

[*Reproduced by permission of the Controller of H M Stationery Office*

THE DOME OF THE ROCK, JERUSALEM

A REPRODUCTION of the Class Picture for this chapter, the *Abbey of Saint-Germain des Prés, Paris* (No 34 in the portfolio), is given on the next page The mosque shown on the plate above is generally believed to occupy the site of Solomon's Temple. It was built or adapted A D. 691

The later history of Jerusalem may be roughly divided into three periods—the Jewish, the Christian and the Moslem During the first of these, Jerusalem, as the "city of David," was the centre of Jewish life and religion. For one half of the term, however, it lay under tribute to foreign powers—Egypt, Assyria, Babylon, Persia, the Seleucids and the Ptolemies (inheritors of the empire of Alexander), Parthia and finally Rome. The period reached its culmination in the supreme event of Calvary, and closed with the destruction of Jerusalem by the Emperor Titus in A D 70

The second or Christian period opens with the rebuilding of the city by Hadrian in A.D 135, under the name of Aelia Capitolina, so called in honour of (Aelius) Hadrianus Jews were forbidden to enter the city on pain of death, temples were dedicated to Bacchus, Venus and Serapis. For two centuries little was heard of Jerusalem, but during this period the eyes of Christendom

turned toward the city on account of its connection with the Founder of Christianity. Pilgrims began to make their way to the Holy City and in A D 326 Constantine ordered a search to be made for the holy places, the sites of the Crucifixion and of the burial of Jesus. Two great churches were built, one of which, the church of the Holy Sepulchre, stood where its present namesake now stands In A D 406 the empress Eudosia repaired and extended the walls and built other churches In A D 637 the Caliph Omar, leader of the great Mohammedan power, added Palestine to the Moslem empire, and himself entered Jerusalem, but he was careful not to harm the city; he showed himself tolerant to the Christians and in no way interfered with the visits of the pilgrims. He built a wooden mosque which the Caliph Abdul Malik rebuilt in A D. 688, this is the mosque el-Aksa Abdul Malik also constructed the Dome of the Rock or Mosque of Omar The end of the eleventh century saw the beginning of the Crusades, the "holy wars" which aimed at re-conquering Palestine from the Turks In 1099 the first Crusaders, under Godfrey de Bouillon, entered Jerusalem, and set up a Latin kingdom, which lasted till the city was retaken by the Moslems under Saladin in 1187 This event ended the second, or Christian, phase of the history of Jerusalem

ABBEY OF SAINT-GERMAIN DES PRÉS, PARIS

(Class Picture No 34 in the portfolio)

The most important event in the third, or Moslem, period was the occupation of the

city by the Ottoman Turks under Selim I., and the erection of the present city walls by his son, Suleiman the Magnificent, in 1542. The period ended with the surrender of the city to the British, under General Allenby, on December 9th, 1917

Jerusalem has never been economically important, and to-day it is chiefly an administrative centre based on an entirely new commercial area beyond the old walled city sacred to Jew, Christian and Mohammedan This new part with its King David Hotel, cafés, cinemas and its Hebrew University as the centre of culture and scientific research is the real city Old Jerusalem of steep winding streets, of assorted population of town and desert Arabs, bearded traditional Jews and young pioneers in shorts and slacks, nuns, monks and Greek priests, and of oriental bazaars cluttered with inlaid sandals, rugs, beaten metalwork, coloured sweets and fruits is now little more than an appendage

INTRODUCTION

The Church in East and West.—We have seen that Constantine the Great placed Christianity on an equality with paganism, and that at the end of the fourth century the emperor Theodosius made it the State religion. The Church was by this time becoming a powerful organisation Each provincial city had its bishop, priests and deacons Over the bishops presided an archbishop (sometimes called a metropolitan), and a patriarch had jurisdiction over the archbishops By the fifth century there were five patriarchs, four in the East—the bishops of Antioch, Alexandria, Jerusalem and Constantinople; and one in the West—the bishop of Rome. In the early Church the clergy received no special training Many carried on business as farmers and shopkeepers, and most of them were married men. During the early Middle Ages, especially in the West, the Church was much in favour of the celibacy of clergy, and at length priestly marriage was prohibited where papal influence prevailed, and gradually it came about that the clergy abstained from worldly occupations. During the fifth century the clergy began to adopt a distinctive dress developed from two pieces of ancient Roman dress—the tunic and the toga. Gradually Church doctrine was elaborated. Councils of higher clergy discussed matters of belief, and when the Church had once expressed itself on any matter of Christian faith, those who maintained contrary opinions were called heretics and their teaching heresy. The emperor Theodosius began persecutions for heresy.

As Christianity spread through the Roman Empire magnificent church buildings were erected. Many of them followed the models of the Roman law courts, or basilicas, the interiors were decorated with paintings, mosaics, images and the figure of the cross To add impressiveness to the service candles were lighted on the altars and fragrant incense was burned. Among the ancient beautiful hymns that were composed were the *Gloria in Excelsis* and the *Te Deum Laudamus* By the time of the fourth century, Sunday (as the Lord's Day was now generally called) came to be recognised as a day of rest.

Christianity early expanded in the East as far as such distant regions as Abyssinia and India The eastern Church was under the supreme control of the eastern emperor This union of the Church and State was a distinctive feature of Christianity in the East, but the Church was torn by numerous heresies, and finally the only remaining orthodox body in the East was the Greek Church, known as the "Holy Orthodox Church," which finally separated from Rome in A D 1054.

In the West the development of the Church took a different form. Since there was no Roman emperor to act as temporal head of the Church, there was no union of Church and State Gradually men began to turn more and more to the Pope who had come to be recognised as its spiritual head, and the Papacy, as the Pope's dominion was called, was the most potent power in

the West Among the many causes of this supremacy of the Pope were the following:

(1) The organisation of the Church was so closely modelled on the lines of the government of the empire that men naturally turned to the Pope at Rome as they had formerly turned to the emperor.

(2) It was accepted that the Church at Rome had been founded by Saint Peter, that he had been its first bishop and had transmitted his authority to all later bishops of Rome

(3) The Roman Church was untainted by heresy, and stood firmly for the creed formulated at the council of Nicaea.

(4) Rome became the great centre of missionary activity, as she had once been of military conquest.

MONASTIC CELL, SKELLIG MICHAEL

Anderson, "Scotland in Early Christian Times"

One of the very ancient monastic buildings on the Great Skellig, an island off the coast of Kerry The hut is built of slate, its religious character is marked by the cross of white quartzstone inserted above the door The projecting stones in the wall and roof may have served for standing on, or putting planks across, while building

The authority of the Papacy was not confined to spiritual matters alone As early as the fifth century tradition declares that Pope Leo I. succeeded in diverting Attila from attacking Rome, and again when the Vandals sacked the city he intervened with success to prevent its entire destruction.

After Leo the next eminent Pope, Gregory the Great, was both a statesman and churchman. In the first capacity he did much to make the Popes virtual rulers of Italy. The peninsula was at the time overrun by the Lombards. Gregory drilled soldiers, appointed officers and issued orders, and was largely instrumental in preventing the Lombards from conquering central Italy. As a churchman, by his writings and his personal influence, he greatly furthered the spread of Christianity in the West, especially by sending out missionaries One of his most important missionary enterprises was the sending of Saint Augustine and forty monks to Britain. Pope Gregory assumed the title *Servus servorum Dei* (Servant of the servants of God) a title which the Popes after him have retained In later ages Gregory was canonised.

Monasticism.—During the Middle Ages the strongest supporters of the Papacy were the monks. Pope Gregory himself had been a monk, and by the time of his death monasticism was firmly established. The clergy of the Middle Ages were divided into (*a*) the *secular* clergy—the bishops, priests and deacons who lived active lives in the world, and (*b*) the *regular* clergy—the monks who lived secluded lives according to rule, and (later) the friars

DAVID AND HIS CHOIR

Anglo-Irish, Early Eighth Century

The two upper figures on each side of David are thought to be scribes holding styles, one having in his left hand a roll, the other an open book, or a waxen tablet for writing The figures are of Roman or Byzantine character

MS Cott Vesp A 1

The origin of monasticism is to be found in the need, often felt by spiritually-minded people, of withdrawing from the stress of ordinary life and seeking a life of solitude and meditation Such a solitary recluse was known as a "hermit," and later the word "monk" (from a Greek word which means "living alone") came to be used Except in rare instances, a life of complete solitude is too hard for ordinary men, and the Christian hermits, who had been in existence since the early days of Christianity, began to live in companies, or communities, which in time developed into the monastic orders.

Probably monasticism was first introduced into Egypt, A D. 305, by Saint Anthony, who is sometimes called "the founder of monasticism" He lived for twenty years in a deserted fort without

seeing a human face, and his monks continued to live in separate huts, holding no intercourse with one another.

Monasticism developed independently in East and West. In the East its great organiser was Saint Basil, who in the fourth century drew up *Saint Basil's Rule*, which is still followed by the monks of the Greek Church

Saint Benedict.—In the West, the organiser of monasticism was Saint Benedict (*c* 480-*c* 544) While still a young man he fled from the luxury of Rome to a cave in the Sabine hills forty miles from the city. Here he lived a hermit's life apart from all human society, and inflicted on himself various mortifications of the flesh, such as wearing a hair shirt, and rolling in beds of thistles He finally came to the conclusion, however, that this was not the best means of obtaining peace for the soul He found what he sought in a community of consecrated disciples who, attracted by the rumour that he had found peace, flocked to him, and were by him organised into a community housed in a "monastery."

These monasteries rapidly increased in numbers, till at Saint Benedict's death there were fourteen which he himself had founded The most important of them was Saint Benedict's own at *Monte Cassino*, midway between Rome and Naples, and this became the capital of western monasticism It was for the monks of this monastery that Saint Benedict drew up the rule of life (partly described in the Children's Story) known as the *Rule of Saint Benedict* By the eighth century it was in use all over Europe The emperor Charlemagne commanded that no other rule should be followed

Saint Benedict was anxious that the monasteries should have no contact with the outside world, but should be entirely independent and self-supporting. In time, many a monastery appeared like a small fortified town Within its walls stood the church in which centred the religious life of the community, the monastery proper, where the monks lived, and the various buildings and workshops needed for supplying food and clothing and other necessaries of life Around them lay the vegetable gardens, orchards and cornfields, and sometimes, if the monastery were built near a stream, a mill and fish ponds.

This great establishment was ruled over by an abbot (from the Syrian word "abba" meaning "father") It was he who watched over the lives of all the monks, and to him the novices made their vows of *poverty*—for no brother might have possessions of his own, *chastity*—for a monk might not marry, and *obedience*—both to the rule of the order and to the directions of the abbot Under the abbot were the prior and sub-prior, and below them each man had his place in the service of the community, from the almoner who saw to the distribution of food, clothes and money to the needy, down to the humblest lay brother who worked in the fields. All had their share in the work of this great "school for the service of the Lord," which was Saint Benedict's definition of a monastery

This regular, peaceful and useful life attracted men of many types Scholars

MONKS PLOUGHING WITH OXEN

found in it a secure retreat in which to study The friendless or disgraced found there a refuge from a cruel world Those whose consciences were heavy with a load of evil deeds found there forgiveness and a chance to make amends Women often found in a nunnery their only safety and their only means of preserving self-respect In view of the attractiveness of the monastic life in a barbarous age, it is small wonder that the number of these institutions rapidly increased.

It is impossible to over-estimate the influence of the monks as civilisers They numbered among them almost all the cultured men of the time, and the monastery was often the only stronghold of civilised life in a barbarous neighbourhood. It was at once a model farm, a hospital, an inn, a library and a school; it set the people who dwelt around it an example of peaceful and cultured life and of active goodness The monks, too, were the chief scholars of the age. They copied the valuable manuscripts of classical writers, they chronicled events of mediaeval history and kept records of the most important happenings of their own time. By the end of the eleventh century almost all Europe had been won over to Christianity, and that largely owing to the zeal of the monks.

CHILDREN'S STORY

The army of the Church.—When the Roman emperors allowed the Christians to worship as they pleased, the Christians began to arrange their affairs like those of a great Christian army The people were the Christian soldiers, and their officers were the priests and deacons who lived in the towns and villages and taught the people about Christ At first they were ordinary working people such as farmers and shopkeepers, but later on they gave their whole time to studying, teaching and visiting Then they wore a simple, dark-coloured dress, which was much like the toga and tunic of ancient Roman times

A higher officer over a number of priests and deacons was called a bishop. He might have a hundred, five hundred or even more priests to look after and advise Over the bishops was a still higher officer called an archbishop, and at the head of all was the Father, or Pope. The first bishop of Rome was said to be the apostle Saint Peter, and as Saint Peter was the first of the apostles, the head of the Church in western Europe was the Pope of Rome Now that there was no longer an emperor at Rome, people of western Europe looked to the Pope to help them not only in their religious troubles, but in other matters besides Kings often consulted with the Pope. When enemies attacked their kingdoms the Pope sometimes helped to get together an army to fight for them. Missionaries went forth from Rome to preach the gospel in other countries So it came about that the Pope of Rome was the most important person in all the Christian lands of the West.

In the East there were also priests, bishops and archbishops and, in the end, the patriarch of Constantinople became the Father of the Eastern or Greek Church. But over him the Byzantine emperor exercised supreme control As Christianity spread through the Roman Empire magnificent church buildings were erected The interiors were decorated with paintings, carvings, images of saints and the figure of the cross. Beautiful hymns, psalms and prayers were written for the services, which were everywhere sung and said in Latin. One day in the week, Sunday, was generally looked upon as a day of rest.

Besides the Pope and his army of archbishops, bishops, priests and deacons there were other clergy who belonged to the army and who also carried the cross instead of the sword These were the monks

Saint Benedict.—Do you remember the Bible story of John the Baptist? He was a man who found that he could serve God best by living alone in the wilderness. His clothes were the skins of animals, and his food the locust bean and wild honey. Now

there were many men of the times of which we are speaking who wanted to be alone with God. They left the busy towns and went far into desert places and rough mountain districts where they saw no other men, and lived on wild fruits and such simple food as they could find around them. One of these men was named Benedict, "the blessed man."

He was born in Italy about A.D. 480, of a noble family, and his father sent him when a boy to the Roman schools. Here he was so shocked by the godless lives of those about him, that when he became a young man he ran away from school and wandered far into the country beyond Rome. At last he came to the ruins of an emperor's palace forty miles from Rome. Among the rocks on the side of a valley he found a cave where he decided to live the life of a hermit. One friend only knew of his abode. This was a monk of a neighbouring monastery, who gave him a monk's clothes and secretly supplied him with food. For three years Saint Benedict lived in the cave, giving all his time to prayer and thoughts about God. The fame of this holy man began to spread abroad, and some monks invited him to become the abbot, or father, of their monastery. But Saint Benedict was not pleased with their way of life and when he tried to alter it some of the monks attempted to poison him, so he returned to his cave. Soon, however, disciples flocked about him, and in time he formed twelve monasteries in the neighbourhood, with twelve monks in each, and himself looking after them all. Later on, accompanied by a small band of disciples, he set out to find a new place for a monastery. He came to Cassino, a town about halfway between Rome and Naples, and on the mountains overlooking the town he built the monastery of Monte Cassino, which was to become famous throughout western Europe as the chief centre of religious life.

A monastery.—A monastery consisted of a number of buildings grouped together and surrounded by a high massive wall and a ditch which shut it off from the outside, and in time of danger protected it against attack. Any man, rich or poor, might, after a year's trial and teaching, enter a monastery, but having once joined he must remain a monk for the rest of his life. A monk could not own any property, he could not go beyond the monastery walls without the abbot's consent, nor could he receive letters from home.

The very name *monk* means "one who lives alone." As time went on, hundreds of Benedictine monasteries were built in different parts of Europe, and they were so well constructed that some of them are still standing. They were generally built on the same pattern. In the centre there was a garden, where the monks grew flowers and herbs, and around the garden ran a covered stone passage called a cloister. Its roof was supported on one side by the monastery wall, and on the other side by pillars making arches through which one could see into the garden. In this pleasant place, which lay open to the sun, the monks spent much of their spare time walking and talking, or reading and writing in little recesses in the wall. In this wall, too, were doors which led into the principal buildings. These included a church, a refectory or dining-room, with the kitchen and buttery near it, a dormitory where the monks slept, and a chapter house or meeting place. The chapter house was so called because every day the monks met there to hear a chapter of the Bible read; here the abbot presided over them as they talked over business matters concerning the monastery. There were also a library, a school, a hospital, and a guest house for strangers, besides barns, bakeries, laundries, workshops and storerooms for provisions. Beyond these buildings lay the orchards, gardens and grain fields and, if the monastery was built on a stream, there was a water mill where the grain was ground into flour to make the monks' bread.

Saint Benedict was anxious that the monks should make the most of their time, so he drew up a time table, or *Rule* which

set out what each monk should be doing at every moment of the day. He called a monastery "a school for the service of the Lord"

The monks began their work very early in the day, for they were expected to leave their beds about two o'clock in the morning Saint Benedict knew how hard it is to get up early, for he wrote in the *Rule*, "when the monks rise for the work of God, let them gently encourage each other, lest the drowsy make excuses."

They put on their simple clothing—a robe of coarse black cloth tied round with a rope and having a hood to put over the head, and sandals on their bare feet—and then they went to the church for service. Saint Benedict believed that the worship of God in church was the most important work a monk had to do, and eight services were held in the church every day.

After the first service came private prayers followed by another service, and then all the monks went to their different tasks Saint Benedict taught that working hard was one way of serving God, and "to labour is to pray" became a favourite motto of Benedictine monks Every monk had his appointed task at which he was expected to spend six or seven hours every day, with four hours for reading from the Bible or the Fathers Some dug in the garden, looked after the cattle and poultry, and ploughed, sowed and reaped the grain fields Others worked in the kitchen, the buttery and the laundry, while others made the clothes

Some monks taught the boys who were some day to become monks themselves, others copied books, for in those days all books were written by hand

At midday the monks had dinner, and one of them read aloud some story of the life of a saint while they ate After dinner they rested and then went back to work once more till it was time for the evening service When this was over they had supper and went early to bed, to make up for beginning the day so early in the morning.

Saint Benedict knew how hard it is always to do right, to be punctual, for instance, and he said that a monk need not be counted late for service if he came in before the choir had finished singing a certain psalm. "For this reason," he wrote, "we wish the end of that psalm to be said *very slowly*." This was to give late comers time to slip into their seats and so avoid the punishment for being late. It is little wonder that men loved the kind and understanding saint.

The boys who went to school in the monastery found it a very pleasant place Besides their lessons and the services in the church, they had plenty of spare time in which to play. Sometimes they were allowed to keep pet animals, and were given gardens of their own. They played games like marbles and chess, and on some of the stones in old cloisters can still be seen the lines they scratched for playing their games

At first only boys who were to be monks were taught in the monastery schools, but later other men sent their sons to be taught by these wise teachers, whatever they might intend their boys to be in after life.

Women also lived in monasteries. They were called nuns and their houses nunneries. They, too, obeyed the *Rule* of Saint Benedict, and lived the same good and useful lives as the monks.

You will understand by this time that the monasteries were more than merely religious homes for the monks. In the towns in those days there were no schools, so that it was to the monasteries that the children went to be taught; there were no hospitals, so that it was to the monasteries that sick folk must go to be cured, there were few inns, so that it was to the monasteries that travellers must go to be entertained; there were no libraries, so that it was to the monasteries that learned men must go to read books Many of the old writings we have now would have long since perished if they had not been kept safe, and fresh copies of them made, in the monastery libraries

The monks were, then, the ministers, scholars, doctors, nurses and schoolmasters. They wrote the only history books of the time by keeping a chronicle of the events

which happened each year, and, most important of all, they spread the religion of Jesus Christ over many lands and set men an example of a good and useful life such as He wished all men to live

We do not know exactly how Saint Benedict died, but it is said that while tending a sick man in a monastery hospital he caught a fatal fever about A D 544 If this is true, it would seem fitting that the saint who spent his life in the service of his fellow-men for Jesus Christ's sake should come by his death in that service.

TEACHING HINTS

1. St. Benedict's Rule.—The manner of life instituted by St Benedict was not one of any great austerity when judged by the standard of his own day His monks were allowed proper clothes, sufficient sleep and ample food. Midnight office was no part of St Benedict's *Rule*

2. Benedictines in England.—When Gregory the Great became a monk and turned his palace on the Caelian hill into a monastery, the monastic life there carried out was based on the Benedictine *Rule* From this monastery went forth St. Augustine and his companions on their mission to England in A.D 597, carrying their monachism with them, thus England was the first country out of Italy in which Benedictine life was firmly implanted

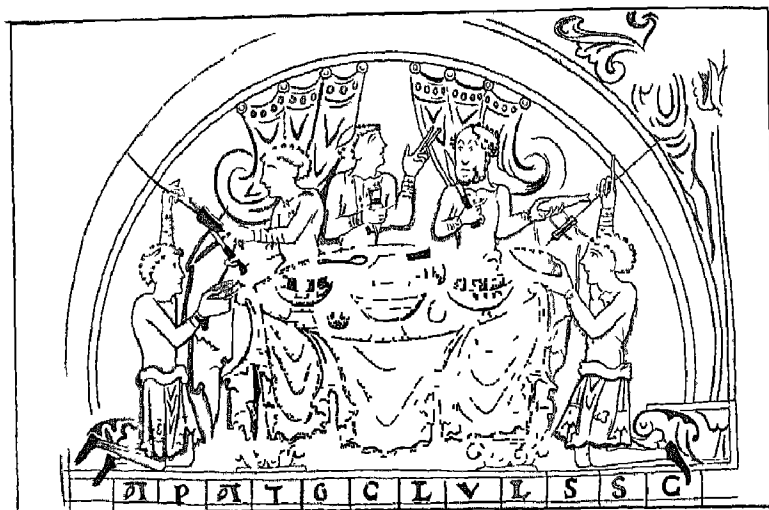
3. Benedictine nuns.—The number of women living the Benedictine life was almost equal to that of the men. St Benedict's sister, Scholastica, is looked upon as the foundress of Benedictine nuns As the movement spread to other lands nunneries arose on all sides, and nowhere were the Benedictine nuns more numerous or more remarkable than in England, from Saxon times to the Reformation The Benedictine nuns played a great part in the settlement of north-western Europe. At the present day nuns carry on every imaginable form of good work—education, the care of hospitals, orphanages, penitentiaries, prisons, of asylums for the deaf, dumb, blind and insane, of refuges for the aged poor and the destitute.

4. Mediaeval cities.—These were originally trading centres only Their public buildings, the market hall and the city hall, were connected with trade alone The only other large buildings were churches, abbeys or cathedrals, and perhaps a nobleman's castle. Later on, it is true, the great merchant princes of the cities of Italy, Germany and Flanders turned their attention to art and architecture, but they beautified the existing buildings and did not create new ones It was only in the seventeenth and eighteenth centuries that great men began to think of spending their wealth on public buildings such as museums, libraries, hospitals and universities.

5. Memory work.—(*a*) Many men and women in early times sought peace by leaving their homes and settling in solitary places where they lived alone with God. (*b*) St Benedict taught these people, who were called monks, how to live together in buildings called monasteries (*c*) He gave them the "Rule of St Benedict" to teach them how to live well and to make the best use of their time (*d*) The monks lived the most useful and unselfish lives, they looked after the poor, the sick, and the helpless, taught the children, and entertained travellers (*e*) The monks spread the teachings of Jesus Christ throughout the world.

6. Exercises.—(*a*) Who were the soldiers of the Christian army? (*b*) Who were the officers? (*c*) Who was the chief officer? (*d*) Why did the people of western Europe look to the Pope to help them when they were in danger? (*e*) What are missionaries? (*f*) What was St Benedict? (*g*) When and where did he live? (*h*) Tell of some of the work of the monks in a monastery (*i*) Why did the monks work very hard? (*j*) How were monks dressed? (*k*) What are nuns? (*l*) What do nuns do to-day?

XII. THE COMING OF THE ENGLISH

PICTURE REFERENCE

ENGLISH BANQUET IN THE ELEVENTH CENTURY

A REPRODUCTION of the Class Picture for this chapter, *Some People of Anglo-Saxon England* (No. 35 in the portfolio), is given on page 135 The plate above is taken from an English Psalter of the eleventh century. The middle figure is holding a horn cup, the one on the left is cutting roasted meat from a spit; the one on the right holds a fish Note the knife, spoon, dishes and cakes of bread.

INTRODUCTION

The sea rovers who invaded Britain after the departure of the Romans in the first half of the fifth century belonged to one of the Germanic races mentioned on page 101. They were the Jutes, Saxons and Angles, who came from the low countries that lie round the mouths of the rivers Ems, Weser and Elbe in Germany, and from the peninsula of Jutland to the north of the rivers. These sea rovers all spoke the Saxon language, and were known to the Britons as Saxons, but they were later known among themselves as English, and finally became united to make the English people.

The Anglo-Saxon invasion of England was a slow process, lasting over a century and a half Owing to the absence of written records, we cannot be sure of the details of the conquest. It would appear that within the seventy years, A D 450-520, the Jutes established themselves in Kent and the Isle of Wight; the Saxons in Essex, Middlesex, Sussex and Wessex, the Angles in Suffolk and Norfolk, and along all the coast from the Wash to the Firth of Forth. Thus the invaders, sailing up the rivers in their flat-bottomed vessels, gradually conquered the fertile lowlands of the east and south The old Romano-British civilisation was swept away, and the Britons themselves were either massacred, or driven to take refuge

SAXON HORSEMEN
(Harl MSS)

in the hill regions of the west and south, where their descendants still preserve the Celtic language.

The fate of the Britons is thus described by the Saxon historian Bede: "The barbarous conquerors plundered all the neighbouring cities and country, spread the conflagration from the eastern to the western seas without any opposition, and covered almost every part of the devoted island. Public as well as private structures were overturned; the priests were everywhere slain before the altars; the prelates and the people, without any respect of persons, were destroyed with fire and sword, nor was there any to bury those who had been thus cruelly slaughtered Some of the miserable remainder, being taken in the mountains, were butchered in heaps. Others, spent with hunger, came forth and submitted themselves to the enemy for food, being destined to undergo perpetual servitude if they were not killed even on the spot Some, with sorrowful hearts, fled beyond the sea" (to Brittany). "Others, continuing in their own country, led a miserable life among the woods, rocks and mountains, with scarcely enough food to support life, and expecting every moment to be their last."

There is no necessity here to give the details of the Saxon conquest, for this subject is not dealt with in the Children's Story It will be useful, however, to note a few details concerning the social life of the conquerors.

The newcomers lived as they had done in their old homes in Europe Each family group had its own township, protected by a rough fence, or ditch, called the *tun*, and surrounded by cornlands, pasture-lands, common and woods. The townships were grouped into what were called *hundreds*, each with its *hundred-man* and its *hundred-court*. The *hundreds* again were grouped into *folks*, or later into *shires*. From time to time men chosen from each township met in the *folk-moot*, or *shire-moot*, to do justice or to talk over plans for peace or war.

These Saxon groups found that they were not strong enough by themselves to win as much land as they wanted from the Britons, and it soon came about that several of them would join together to form a kingdom. Each kingdom had one ruler called the king, whose business it was to look after the affairs of the united people. The kings each had a chosen war-band of followers who were called thanes The thanes were rewarded for their services to the king by

PART OF A HELMET, IRON OVERLAID WITH BRONZE, REPRESENTING A NORTHERN WARRIOR

The helmet was found in a grave in Norway and dates from c. A D 450-700.

gifts of land, so that in time many of them became rich and important When the king wished to let his people know what he was about to do, he called together the chiefs, the thanes and his principal clergy. This meeting was called the witan, that is, *the meeting of the wise men*

The kingdoms were not always friendly with one another, and there was a great deal of fighting among them for the ownership of the lands taken from the Britons. First one kingdom and then another gained the mastery. The smaller kingdoms joined together under one king for strength, or were conquered, until at last there were left only three main kingdoms, which were called Wessex, Northumbria and Mercia Wessex, the land of the West Saxons, was the kingdom in the south of England; Northumbria, the country north of the river Humber, was in the north, and Mercia in the middle

It must be remembered that the land of Britain was not conquered without severe fighting The Saxons found, as the Romans had found long before, that the hill country and the moorland of the west and north were very hard to win. After 150 years of fighting, the Britons still held most of the west of England, while the Saxon kingdoms struggled with one another in the lowlands

The conversion of England.—On the coming of the Jutes, Saxons and Angles to Britain, nearly all traces of Christianity in the land were swept away. Churches were destroyed and priests were killed; only in parts of Wales, Scotland and Ireland did the Christian faith remain. The Britons sent out missionaries to convert their neighbours Early in the fifth century, St Patrick went to teach the heathen in the north of Ireland St Columba, an Irish missionary, founded a monastery at Iona, a tiny island off the west coast of Scotland, and from this island monks were sent to preach the faith to the Picts of Caledonia. Many monasteries were founded in Wales Towards the end of the sixth century a famous monastery near Bangor contained two thousand monks St. David, the patron saint of Wales, lived at this time.

Late in the sixth century Pope Gregory the Great conceived the idea of converting England, as a result, so the well-known story goes, of seeing English boys exposed for sale in the slave market at Rome His first opportunity came in connection with Kent. This kingdom was the nearest to the continent of all the Saxon kingdoms, and had long maintained a trading intercourse with the Franks in Gaul, who were already Christians. Its king, Ethelbert, married a Frankish princess, a Christian lady who brought her chaplain with her to England. Ethelbert installed him in the ruined church of St. Martin's, at Canterbury, with permission to hold services and to convert any whom he could persuade to accept the new faith.

ST MARTIN'S CHURCH, CANTERBURY, AS IT IS TO-DAY

It is not known for certain when the present church was built, but Christian services have been held in it for at least 1,300 years

This was Gregory's opportunity. The duties of his office prevented him from visiting the island in person as he had hoped; but in A D 597 he despatched St Augustine, with forty brother monks, to the court of the already friendly Ethelbert, and was rewarded in time by the news that they had converted Kent

Between the years 600 and 700 the foremost of the English kingdoms was Northumbria, and one of its greatest kings was Edwin To guard his land against the

S LUKE, FROM THE GOSPEL BOOK OF S. AUGUSTINE—*c* SEVENTH CENTURY

Now at Corpus Christi College, Cambridge

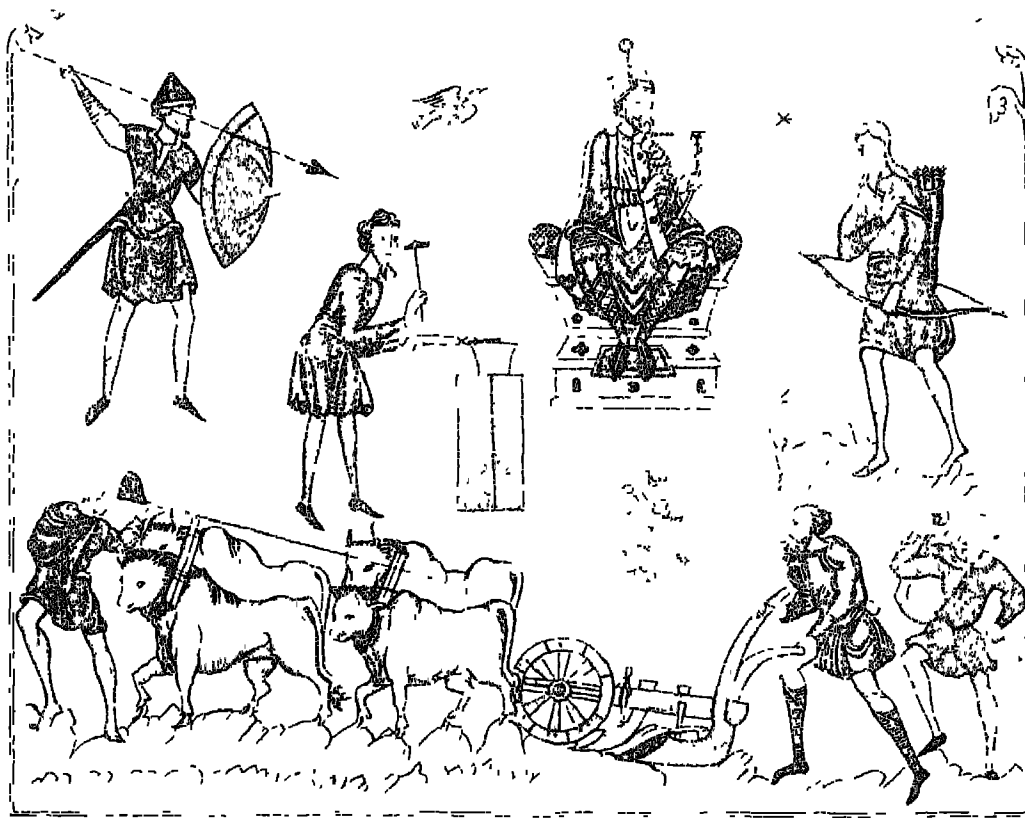
B C —800 —700 —600 —500 —400 —300 —200 —100 —0 A.D —100 —200 —300 —400 —500 —600 —700 —800 —900 —1000

Picts and Scots he placed a fortress, named after himself, Edwinsburgh, or Edinburgh, on a rocky height near the Forth. He launched a fleet at Chester and won the islands of Man and Anglesey. To show that he was ruler over a large part of Britain, a standard bearer, with a banner of purple and gold, went before him as he rode through the villages, and as he walked in the streets a man went before him carrying a spear decorated with a tuft of feathers Edwin became overlord of the East Anglians and Mercians, for his war-band was greater than theirs To win Kent to his side he married Ethelburga, a sister of the king of Kent. Then he marched against the West Saxons, defeated them in battle, and forced Wessex to own him as overlord.

The account of the conversion of Northumbria which is given in the Children's Story is preserved for us by Bede.

Mercia was still a heathen kingdom, and Penda, its king, was the fiercest warrior of his day He made himself overlord of all the states of middle England from the Severn to the borders of East Anglia; he defeated Wessex in a great battle, and gained more land; then he called on Cadwalla, a king of north Wales, to help him, and marched against Edwin. It seems strange that a British Christian king like Cadwalla should join to help the heathen king Penda, but perhaps Cadwalla wished to be revenged on the people who had driven the Britons from their homes In a great battle at Hatfield, in Yorkshire, Edwin the Great was slain.

The Welsh king, Cadwalla, remained in Northumbria burning and slaying, till in 635, Oswald, a nephew of Edwin, defeated him, and was chosen king of the Northumbrians. Oswald had been converted to Christianity in the monastery of Iona, and he asked that an abbot should be sent from Iona to convert his people once again. A saintly British monk, called Aidan, was sent. He made his home in Holy Island (Lindisfarne), off the Northumbrian coast, and by his preaching and good example converted many heathen Northumbrians Thus there were two Churches converting the English, the Roman Church in the south-east and the British Church in the north.

OLD ENGLISH NECKLACES
Made of glass beads of various colours.
British Museum

SOME PEOPLE OF ANGLO-SAXON ENGLAND COPIED FROM OLD PICTURES

(Class Picture No 35 in the portfolio)

Oswald now became overlord of Wessex, and Wessex became Christian also; but Penda came against him, and defeated his army, and Oswald fell in battle, praying with his last words that God would have mercy on the souls of his followers (642). The heathen king, Penda, continued for some years conquering, burning and slaughtering, but at last he was slain in the battle of the Winwaed by Oswy, a brother of Oswald, A D 655 After Penda's death missionaries converted Mercia, so that most of England at last became a Christian land.

There were, as we have seen, two missionary Churches at work in England, the Roman and the British. On certain matters these Churches could not agree, and king Oswy called a meeting, or synod, at Whitby, 664, to talk matters over. To this meeting came bishops from both parties. King Oswy listened to their long speeches, and decided that the Roman rule of the Church should be followed The Roman and the British Churches were united under the Pope and were ruled for him in England by the archbishop of Canterbury. A few years later, a great archbishop, named Theodore, was sent from Rome to arrange all matters concerning the now united English Church.

With the coming of Theodore to England many new bishops were appointed, and parish priests began to live in the townships, where they could always be at hand to help those who needed them. In the open spaces of the townships where their meetings were held, the people gathered round to hear

the priests. Doubtless they often set up a rude cross, and probably that is why in later years a market cross was built in so many towns and villages of England In the monasteries the monks had churches of their own, but, gradually, through the gifts of kings, thanes and others, parish churches were built Theodore had at Canterbury a school of learned monks, and these men taught and helped others, so that we find stone churches taking the place of the first simple wooden ones One of these early Saxon churches, built by Ealdhelm, the abbot of Malmesbury, is still standing at Bradford-on-Avon

CHURCH AT BRADFORD-ON-AVON, BUILT BY EALDHELM
This little building is the only complete specimen now remaining of early English construction in stone

Mercia and Wessex.—We have seen that during the greater part of the seventh century, Northumbria, under the kings Edwin, Oswald and Oswy, was the most powerful kingdom in England During the eighth century, that is, from the years 700 to 800, Mercia was the chief kingdom The long reigns of two of Mercia's kings, Ethelbald and Offa, covered eighty years King Ethelbald invaded Wessex, and made himself overlord of all the kingdoms south of the Humber. The West Saxons rose against him and finally defeated him The next king, Offa the Mighty, took up the work of making the Mercian king overlord of southern England He brought Kent, Essex and East Anglia under his sway, he defeated Wessex and took from them all their land north of the Thames. He did not, however, go farther south, for Wessex, though smaller, was still strong in fighting men. Then Offa turned to Wales. He forced the Welsh back from the Severn, and is said to have had an earthern rampart and a ditch made from the south of the Dee to the Wye, close to where it joins the Severn, to form a barrier between England and Wales This embankment is called "Offa's

Dyke." Whether this is true or not, we do know that Offa was unable to go farther west and defeat the Welsh.

Six years after Offa's death, in 802, a great ruler named Egbert came to the throne of Wessex This king had spent several years at the court of Charlemagne, the powerful and learned king of the Franks, and there Egbert had learned much of the duties of a king Like all kings of those days, he was a warrior, and under his rule Wessex became the chief power in England He defeated the Mercians in a great battle at Ellandune, 823; added Kent to his kingdom, and was looked on as overlord of all the other English kingdoms Egbert was not only a great soldier, he was also a wise ruler, and under him there was peace in the land. He helped the archbishops and clergy in spreading Christianity, but even yet the English were not united under one king

ENGLAND IN THE EIGHTH CENTURY

CHILDREN'S STORY

The Saxon sea-wolves.—When the Romans left Britain sea rovers raided the country in greater and greater numbers. These invaders were Jutes, Saxons and Angles who came from the low countries round the mouths of the rivers in Germany and from the peninsula of Jutland to the north of the rivers.

These sea rovers all spoke the Saxon language and were known to the Britons as Saxons, but they were later known among themselves as *English* They were fair-haired people, blue-eyed and tall, very like

the Britons themselves. In their own country they lived in small log houses in villages built in the clearings of the woodlands, where they grew crops and tended their herds of cattle and pigs. Many loved the life of the sea, where they fished, or hunted the seal and the whale.

But they were not always content with such peaceful occupations They loved warfare and adventure and the sea-roving life. Each year, as summer came round, the young men gathered in bands round their lords, and got ready their galleys, each of which carried a crew of about fifty men The lord had a helmet and shirt of ring mail and a jewel-hilted sword He gave a sword to the captain of each galley, and to every man a round wooden shield and a long spear with an ash wood shaft and iron head Then away they sailed over the North Sea to Britain, for they had heard of its warm, well watered lands, rich in grain fields and cattle pastures, and in oak forests swarming with deer and swine These were lands far richer than the sandy dunes, heaths and forests of their own country, and they were eager to win them for their own, and to plunder the rich towns and villages

As their galleys were nearly flat-bottomed they could be rowed far up the rivers into the very heart of the country When the warriors landed, they left their galleys under a guard and the rest of the war-band spread across the country, killing, burning and plundering. A Roman poet wrote of the Saxons, "Foes are they, fierce beyond other foes, and cunning as they are fierce; the sea is their school of war and the storm their friend, they are wolves that live on the pillage of the world"

It is difficult for us to imagine the state of our land during the long years of the Saxon conquest The towns of Roman Britain came to an end; country houses met with the same fate as the towns, some were burnt and others were left empty, for the people packed their goods and fled Men who have searched underground among the ruins of Roman camps and cities tell us that the Saxons destroyed everything within the walls, for they find spears, swords, helmets, breastplates, boots, coins, statues and bones of men and horses, all heaped in confusion

For many years the fine city of Bath lay desolate, the famous hot baths were choked with rubbish and overgrown with brambles. Even London became a waste, and remained so for a long time The splendid Roman roads were left unmended, bridges fell into ruin, rivers swept away the crossing-stones, and the causeways became buried in the swamps. The forest spread where once had been wheat fields, orchards and vineyards The Saxons hated the towns, and all that the Romans had left behind them They were villagers, and liked to live with their kinsmen away from roads and towns, in open clearings in the forests The Saxon invasion of Britain put the land back almost to where it was before the Romans came.

Britain becomes England.—Gradually the Saxons settled in Britain and began to live as they had done in their old homes in Germany. At first they lived in families, but they soon found that they were not strong enough to fight the Britons unless they joined together. Several tribes would unite to form a kingdom, with a king, who ruled with the help of a council of wise men called the *witan* Each king had a chosen war-band of followers who were called thanes Many thanes became rich and important, for the kings rewarded their thanes for good service with gifts of land.

The people did not pay their kings in money, for money was scarce in those days, but they paid taxes in food, such as wheat and rye for making bread; barley for making beer; honey, eggs, milk, poultry, cattle and pigs The king had many houses in different parts of his kingdom, and wherever he and his servants stayed, the people from the district round had to supply them with all they needed. When they went to battle the villagers had to leave their fields, their

cattle and their pigs, and follow the king and his thanes.

There were many of these kingdoms in the land, and they were not always friendly with one another There was a good deal of fighting among them for the ownership of the lands taken from the Britons. First one kingdom and then another gained the mastery. The smaller kingdoms joined together under one king for strength, or were conquered, till at last there were left only three main kingdoms, *Wessex*, *Northumbria* and *Mercia* Wessex, the land of the West Saxons, was the kingdom in the south of the island; Northumbria, the country north of the river Humber, was in the north, and Mercia was in the middle.

As the Saxons joined together more and more in this way, they began to speak of themselves as the English, and of their land as England After about one hundred and fifty years of fighting the Britons were driven to the hill country of the west.

The English become Christians.—When the sea rovers came to Britain they were heathens, and believed in many gods. Our own names for the days of the week still recall to us the gods of the Saxons. From Woden, the war god, we get our word Wednesday, Thursday is the day of Thor, the Thunderer, the god of air and storm and rain; Sunday and Monday are the days of the sun and moon. The Saxons' religion taught them to be brave in war, careless of danger and death, and loyal to their chief. It taught them that if they died in battle they lived for ever with the gods, fighting by day and feasting by night. It is little wonder that they were such fierce foes.

The heathen Saxons destroyed the churches and killed the priests Only in parts of Wales, Scotland and Ireland, where the Britons still lived, did the Christian faith remain. The Britons in these places sent out missionaries to persuade their neighbours to become Christians Saint Patrick went to teach the heathen of Ireland, and Saint Columba, an Irish missionary, founded a monastery at Iona, a tiny island off the west coast of Scotland. In Wales, too, Saint David taught the heathen about Christ.

How Kent became Christian.—One of the Saxon kingdoms was called Kent, and one of the kings of Kent, named Ethelbert, married a Christian lady from Gaul. Her name was Bertha, and her husband loved her dearly. He allowed her to worship God in her own way, and gave her a little ruined Roman church (now known as St Martin's) at Canterbury, where she might have services.

Now the Pope, who was the head of the Church and lived at Rome, was very anxious to see England become a Christian island, and he thought that, since the king of Kent had a Christian wife, Kent would be the likeliest place in which to begin Christian teaching. This Pope's name was Gregory the Great, and it is said that once, as a young man, he saw some fair English children in the slave market at Rome

"Who are those beautiful boys?" he asked.

"They are Angles," was the reply.

"Not Angles but angels," said Gregory. He thought how sad it was that these angel-faced children should know nothing of Christ, and he made up his mind to send missionaries to England to teach its people about Him.

The man he chose was a monk called Augustine. In the year A.D 597 Augustine landed in Kent with forty other monks, and on a certain day Ethelbert and his nobles met together in an open space near Canterbury to hear about the new faith. They did not meet in a house, for the English were afraid that the new gods might hurt them within closed walls, but when they saw the peaceful monks coming in procession singing psalms and hymns, they felt that the new gods were not likely to do them any harm. Before long, Ethelbert, together with thousands of the men of Kent, was baptised. Later, Saint Augustine became archbishop or head bishop of the English.

Ethelbert gave him a ruined church at Canterbury, and that church, named Christ Church, became the mother church of England. Where it once stood now stands Canterbury Cathedral.

The new faith spread to Essex, to London, which was once more an important trading town, and, as we shall see, to distant Northumbria.

How Northumbria became Christian.—The king of Northumbria was named Edwin, and the city which he built is called after him Edinburgh (Edwin's city). He had married Ethelburga, who was a sister of the king of Kent When she came to her new home in the north she brought with her Paulinus, a follower of Saint Augustine. Paulinus long urged the king to become a Christian, and at length Edwin called together the witan to discuss the matter, and to decide whether he and his people should accept Christianity

He opened the meeting by asking each member of the witan to say what he thought of the Christian faith The first to speak was the heathen priest, Coifi. "O king," he said, "for many years I have served our gods faithfully, and they have done nothing to help me. Perhaps this new God will be kinder and more grateful Let us serve Him, and see what He will do for us"

After him an aged warrior rose to speak, and he gave a nobler reason for accepting Paulinus's message "Man's life," he said, "seems to me like the flight of a sparrow through a lighted hall on a winter's night, when the rain and wind are raging without You and your thanes are sitting round the table feasting, and the fire is burning brightly, the sparrow flies in at one door into the light and warmth, and then flies out at the other, into the darkness again. Out of the winter he comes, and back to the winter he goes. So is the life of man What went before, and what will follow after, no man knows Perhaps this new faith can tell us something more certain. If so, we shall be wise to accept it."

When each man had spoken, Paulinus rose, tall and dark and stooping slightly. He told the king and his witan of Jesus Christ, and of how He said that whosoever believed on Him should never die and go out into the winter darkness like the sparrow, but should live happily for evermore.

When he had finished speaking, Coifi rose again. "Long have I thought that our old gods were false," he said, "but now I have seen the true religion and a new way of life that will lead us to eternal happiness It is my judgment that we follow that Way."

So said all the witan. "Then who will be the first," asked the king, "to destroy the temples of the idols?"

"That will I," cried Coifi Seizing a spear, he called for a horse and, leaping upon it, rode straight for the nearest temple. People who saw him thundering past thought that he must be mad, for the heathen priests were not allowed to carry weapons or ride a horse, and they followed him to see what he would do.

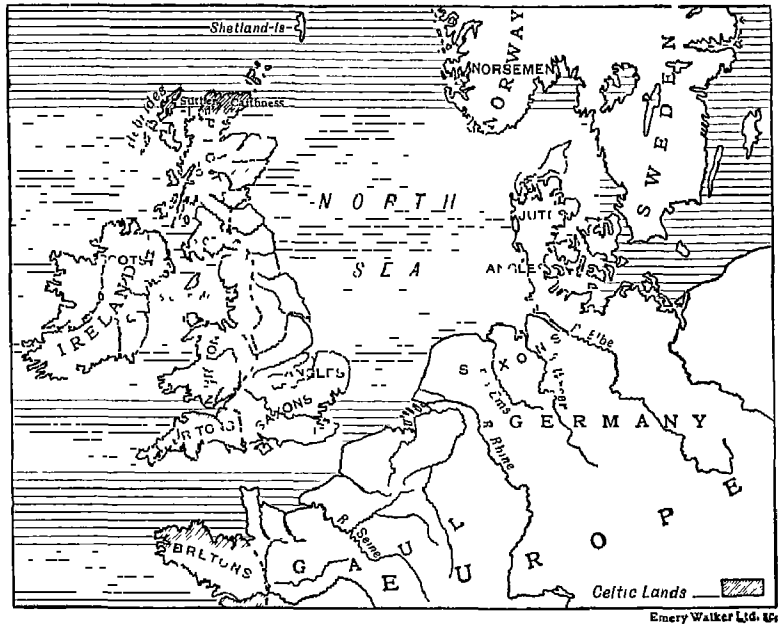
When the priest reached the temple, he hurled his spear at its wooden wall, crying out to the people that the gods in it were false gods and that men must worship them no longer When the people saw that nothing happened to their priest, they took courage, and he and they together set fire to the temple and burned it to the ground Then Edwin and his witan, with many of his subjects, were baptised Paulinus became bishop of York and persuaded many more to become Christians

Soon after this, Wessex too accepted the Christian faith The middle kingdom of Mercia held out longest, under its fierce heathen king Penda. But when this king died Mercia, too, became Christian, and so Gregory's dream came true, and England, the land of the Angles, became a Christian land.

TEACHING HINTS

1. Maps.—The accompanying map will be useful to the teacher for a blackboard sketch showing the homes of the Jutes,

Saxons and Angles. The map on page 137 can also be copied.

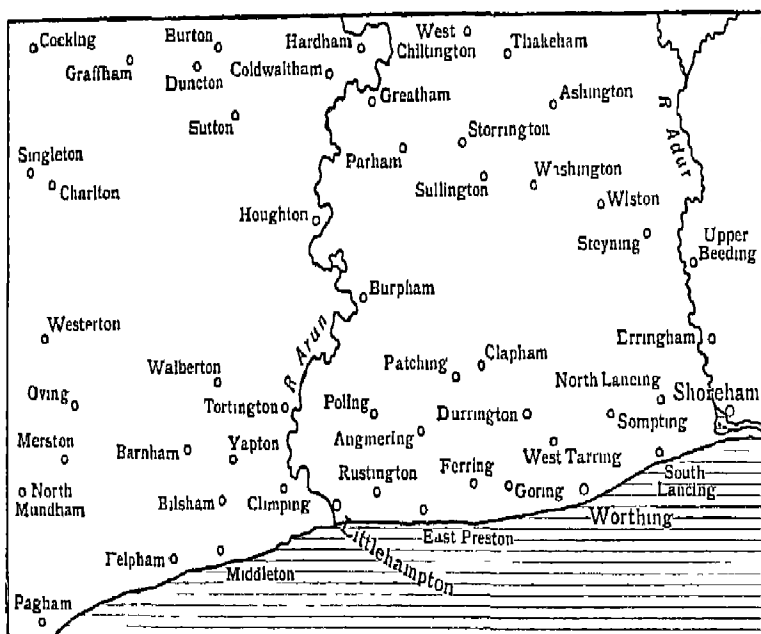
2. Gregory and the Angles.—Gregory's remark is much more forceful in the Latin, "Non Angli, sed Angeli," where the two words are pronounced almost alike, except that the first has two and the second three syllables. The children will appreciate the Latin phrase, because of the fascination of hearing the words of Pope Gregory as he spoke them so long ago

The Early Homes of Jutes, Saxons, Angles and Norsemen

The shaded parts show the lands to which the Celts were driven

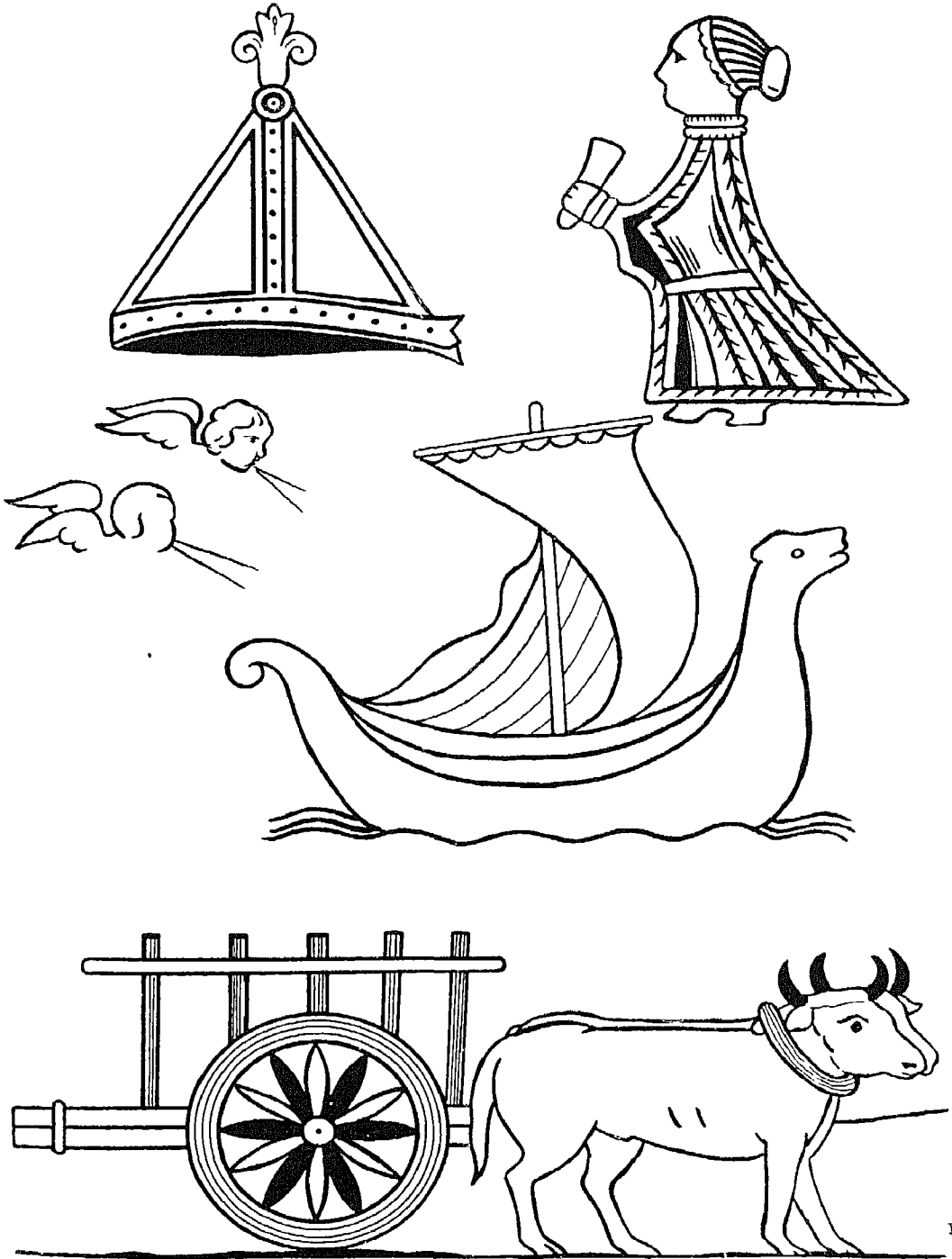
3. Place names.—The children will probably remember that many names of towns in England, such as Leicester and Chester, are reminders of the Roman rule The Angles gave their name to England, which is *Angle-land* *Essex* was the home of the East Saxons, *Wessex* of the West Saxons, *Middlesex* of the Middle Saxons, and *Sussex* of the South Saxons. *Suffolk* was the home of the South Folk, and *Norfolk* of the North Folk. Most of the names of places in England were given by the English themselves Many villages and towns have names ending in *ham*, which means *home*; and *ton*, which means township or village in the language of the Angles and Saxons Buckingham was the home of a Saxon family called Bocking, Taunton in Somerset is the township on the river Tone Many place names end in *ing*, which amongst the early Saxon settlers usually meant *the sons of*. Thus the sons of a man named Rede settled at Reading; the sons of Billinge at Billingham,—and so on. If there is an ordnance map available it will be interesting for the children to make lists of places with names ending in *ham*, *ton* and *ing* The map on the next page of a part of Sussex shows a large number of towns and villages of English origin. It should be pointed out that the English that we write and speak is founded upon the old language of the Angles and Saxons. Of course, it has been greatly changed through the years that have passed, and if we heard anyone speak as an Angle or a Saxon spoke, we should not understand him Then, too, a great many new words have come to us from peoples of other countries, but members of the English race in different parts of the world speak a language founded on that of the Angles and Saxons The Britons of Wales, whom they were not able to conquer, were called *Welsh*, or foreigners, by the Saxons, and to this day the Welsh speak a Celtic language.

4. Memory work.—(*a*) The Saxon sea rovers were fierce heathens who came to England from the lands now called Germany,

Jutland, Norway and Sweden (*b*) After 150 years of fighting they conquered the low lands of Britain. (*c*) In the year A.D. 597 St. Augustine came to Kent with a band of forty monks to convert the English. (*d*) At the Synod of Whitby it was agreed that the British Church should be under the rule of the Pope.

5. Exercises.—(*a*) Who were the sea rovers? (*b*) Where were the homes of the sea rovers? (*c*) What is the origin of our words *Wednesday* and *Thursday*? (*d*) Why were the Saxons careless of danger and death? (*e*) What use did the sea rovers make of the rivers? (*f*) What happened to the Roman towns left in Britain? (*g*) In what century did the sea rovers begin to settle in Britain? (*h*) What is the origin of the words *Essex* and *Middlesex*? (*i*) Why did the settlers form kingdoms? (*j*) Who were the thanes? (*k*) What was the witan? (*l*) Why do many place names in England end in *ham* and *ton*?

A PART OF SUSSEX, SHOWING ENGLISH VILLAGE NAMES ENDING IN *ham*, OR *ton*, OR *ing*

SKETCHES FOR THE BLACKBOARD

Saxon Helmet — Silver Pendant—Figure of Woman Carrying Drinking Horn

Early English Sailing Vessel

Early English Cart

XIII. MOHAMMED

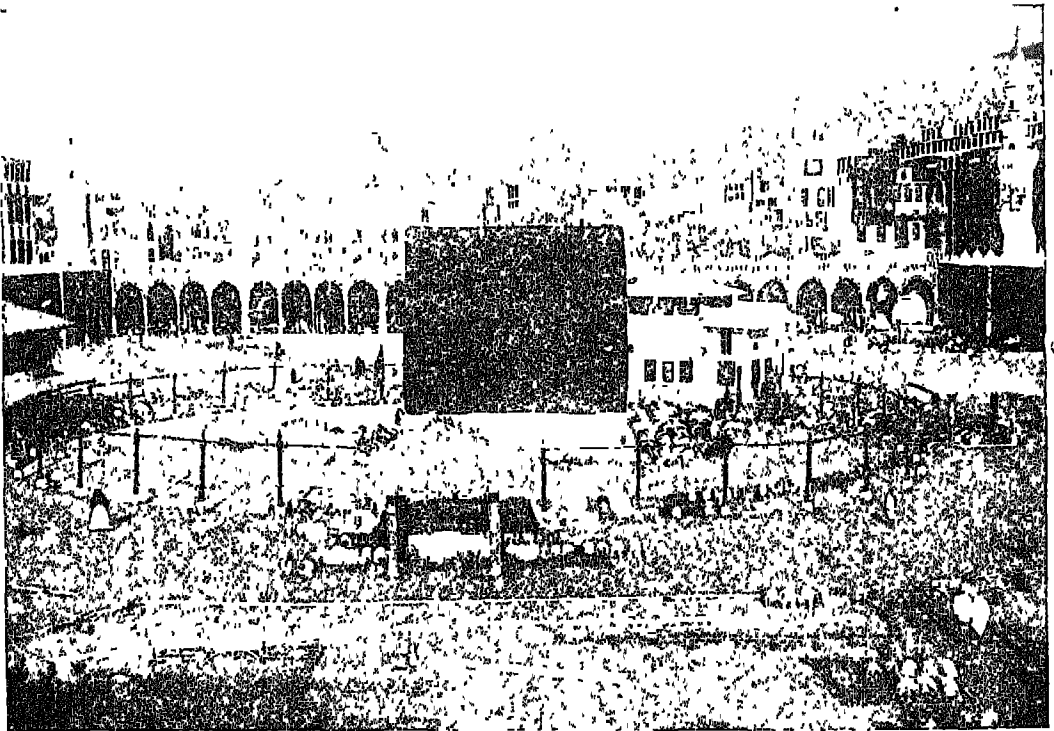
PICTURE REFERENCE

THE CLIMAX OF THE MECCAN PILGRIMAGE

(Class Picture No 36 in the portfolio)

INTRODUCTION

From Arabia, since the dawn of history, one tribe after another—Babylonians, Assyrians, Phoenicians and Hebrews—had gone out to populate the lands of the near East.

The Arabs were originally a nomadic peasant race divided into many hostile tribes who inhabited the more or less desert lands between the wide valleys of the Nile on the west and the Tigris and Euphrates on the east They were at this time a semi-civilised race, who had learned, besides their ordinary occupation as hunters and herdsmen, to trade with Egypt and Babylon, exchanging in return for the grain, tools and weapons they needed, their horses, camels, skins and bales of wool, together with the spices which have made "the perfumes of Arabia" a proverbial expression The lives they led in the wilderness closely resembled those of the Hebrew patriarchs—

[Photo E N A

MECCA

A general view showing the Ka'Ba in the court of the Great Mosque This small and nearly cubical stone building contains the famous black stone fabled to have come down from Paradise whiter than milk, but to have become changed to black by the sins of the children of Adam who have touched it

Abraham, Jacob and Joseph—as described in the Old Testament.

Contact with more cultured races had raised their standard of living, and they had learnt a system of writing with an alphabet based on that of the Phoenicians In many ways, however, they were barbarous still, especially as regards their religion, which was a primitive nature worship of stones, trees and other natural objects, and of the gods who were supposed to inhabit these objects The centre of Arabian heathenism was at Mecca, which was also the commercial metropolis. For four months in each year there was no fighting between the tribes, and they went to Mecca to visit the sanctuary called the Ka'Ba By nature the Arabs were hardy, vigorous and passionate, with a great love of fighting, and they only needed national unity to become a power in the world.

Mohammed.—This unity they found in the teachings of Mohammed "the much praised" (A.D 570-632), whose religious career began in A D 610 at the age of forty, and ended only with his death He was born in Mecca, apparently of distinguished parents His mother dying when he was six and his father two years later, Mohammed was brought up by his uncle, who took him with him on caravan journeys, on one of which, it is said, a Christian monk met him and prophesied his future greatness. On these journeys the lad learned to know his country and its people, and he came in

touch with the teachings of the Jews and the Christians, which he was thus able to compare with the religion of his race

Mohammed had no regular education, and spent his early manhood as a camel driver and a shepherd. When he was twenty-five a wealthy widow named Khadija entrusted him with the safe conduct of some caravans across the desert from Mecca to Syria; and he fulfilled his task so well that, when he asked her, Khadija married him, and she became the prophet's inspiration and his faithful companion till death "She was his first convert, she comforted him when he was mocked, she encouraged him when he suffered persecution, she strengthened him when he was wavering" Mohammed returned this devotion by his own faithfulness, and while she lived never took another wife as by Arab custom he was allowed to do, though after her death he considered himself excused from fidelity to her memory and married several wives.

After his marriage he settled down in Mecca as a merchant We have a description of him at this time in the speech made by his uncle at the marriage feast "Although poor in goods, which are but transient possessions," he said, "my nephew Mohammed excels all the men of his tribe in nobility of soul, virtue and understanding" The following description of him was written by an Arab. "He was fair of complexion, with a measure of redness, eyes intensely black, his hair not crisp, but depending, beard bushy and thick. Where he walked it was as though he walked from a higher to a lower place; and when he walked it was as though he wrenched his feet from the stones. He was neither long nor short, he was neither weakly nor vile, and the like of him I never saw before or after. . . . Whoever saw him for the first time would be awe-stricken by his appearance, but on close intimacy this would give way to love."

For more than ten years Mohammed lived as a merchant, but he was restless and ill-content, and developed the habit of spending days, and once in the year a whole month, alone in a desert cave near Mecca. Here in a kind of trance he saw visions and thought deeply on the nature of God. At last, in his fortieth year, so he declares, a vision appeared to him in which the angel Gabriel bade him publish abroad the thoughts that had come to him in the solitude. At first he doubted whether the dreams were of good or evil origin, but, reassured by further dreams and encouraged by Khadija, he accepted his vocation.

During the first three years he worked secretly, making a few converts among his own kindred and friends. At the end of this time he appeared in public and announced the message which has since become the creed of all Mohammedans—"There is no god but Allah, and Mohammed is the prophet of Allah."

He immediately encountered persecution, which increased till it finally became a conspiracy to kill him The prophet and his adherents were obliged to flee from Mecca to the place now called Medina (the city of the Prophet), about 200 miles farther north. This flight, known as the Hegira, is considered of vital importance by the faithful, since it marks the beginning of the independent rise of the new religion So important is it that the year A D. 622, in which it occurred, is counted by them as the year 1 of the Mohammedan era

In Medina, Mohammed began to formulate the doctrine of Islam, that is *reconciliation* to Allah, the true God, and to work out a way of life for all faithful Moslems He gave his followers five simple rules of conduct which must be observed by a true follower of Islam.

1. He must recite aloud, once in his life, correctly and with full

B C —800 —700 —600 —500 —400 —300 —200 —100 —0 A D —100 —200 —300 —400 —500 —600 —700 —800 —900 —1000

understanding, "There is no god but Allah, and Mohammed is the prophet of Allah."

2 He must pray five times a day—at dawn, just after noon, at sunset, just after sunset, and at night. Before prayer he must wash face, hands and feet, and during prayer he must turn toward Mecca, with his head to the ground.

3. He must fast during one month of the year, the month of Ramadan when Mohammed received the heavenly vision

4 He must give alms to the poor.

5. He must go at least once, if he possibly can, on pilgrimage to Mecca.

These and a few other important regulations, such as abstention from strong drink, and the duty of showing kindness to the sick and poor, and to helpless beings, such as widows and orphans, slaves and animals, are to be found in the Koran, or sacred book, of the Mohammedans This book is made up of the inspired sayings of Mohammed which throughout his life he was wont to utter while in a trancelike state. They were taken down by friends or relatives on fly leaves, which were actually any materials that came to hand—stone, leather, bone or wood—and after his death these leaves were collated, together with many remembered utterances, and made into the book which became the sacred scripture of Islam In the religious system of Islam there are no priests and no elaborate ceremonies of worship, nor are there in the mosques any altars, pictures or images On Fridays, the Mohammedan Sabbath, an official offers up public prayer and delivers a sermon in the mosque, after the service the worshippers go about their ordinary occupations

Mohammed enjoined on his followers as a sacred duty the propagation of their faith, and, if they failed to achieve this aim by peaceful means, he ordered them to proselytise by force of arms Moreover, any believer killed in battle against the infidel was promised an immediate ascent to paradise, the eternity of bliss prepared for the faithful. In this way Islam became a fighting creed which swept the then known world

One of Mohammed's first military expeditions was the siege and capture of Mecca itself in A D 630. The worship of Allah was installed and Mohammed made several further pilgrimages to the holy city before his death at Medina in A.D. 632.

The historian Gibbon, in writing of the private life of Mohammed, says. "The good sense of Mohammed despised the pomp of royalty, the apostle of God submitted to the menial offices of the family, he kindled the fire, swept the hearth, milked the ewes, and mended with his own hands his shoes and his woollen garment. Disdaining the penance and merit of a hermit, he observed, without effort or vanity, the abstemious diet of an Arab and a soldier. On solemn occasions he feasted his companions with rustic and hospitable plenty, but in his domestic life many weeks would elapse without a fire being kindled on the hearth of the prophet The interdiction of wine (forbidden to all Mohammedans) was confirmed by his example, his hunger was appeased with a sparing allowance of barley-bread; he delighted in the taste of milk and honey, but his ordinary food consisted of dates and water."

The Arab Empire.—Mohammed's great achievement was the unification of the Arabs into a nation. In the hands of his successors, the caliphs, this nation became a mighty empire, which embraced Persia, Syria, Egypt, North Africa and Spain.

Within ten years of Mohammed's death the Moslems seized from the Romans the provinces of Syria and Palestine with the famous cities of Damascus, Antioch and Jerusalem. They overthrew the Persian power and subjugated Egypt. The conquerors did not, however, treat their new subjects with ferocity. There were neither massacres nor persecutions, nor were the conquered compelled to adopt Islamism. So long as they paid ample tribute they were left to follow their own devices In

many of the conquered countries the Christians adopted Islamism, so that they might acquire the rights of Moslem citizens.

In later years Arab expansion threatened Constantinople. The vital question in the eighth century was, "could Christendom hold out against Islam?" The answer came when the Arabs failed after a desperate siege by land and sea to take the city, A.D 716-717.

In the West the Arabs made permanent conquests in North Africa, and Arabs and Berbers (the native race) still comprise the bulk of the population, though the once independent states are now under the governments of France and Italy. In A D 711 an army of Arabs and Berbers under Tarik crossed the straits and entered Spain, and within a few years mastered the country to the Pyrenees. Crossing the mountains they captured many cities in southern Gaul, but were finally stopped by the Franks under Charles Martel at the battle of Tours, A D. 732, and were finally driven back to Spain by the Frankish ruler, Pepin the Short.

A few years later the great Moslem empire split up into portions, one in the East ruled by the caliph of Bagdad, and the other in the West ruled by the emir (later caliph) of Cordova in Spain A third caliphate afterwards arose in North Africa, with its capital at Cairo.

The Arab Empire endured till early in the eleventh century, when the Seljuk Turks, recent converts to Islam, crossed the Oxus and gradually conquered the empire The menace of the Turks to Christendom was the immediate cause of the Crusades.

Arab civilisation.—The Arabs were the most cultured people of the Middle Ages. The caliphs protected and encouraged learning, new ideas gave rise to many writings of all kinds, and most of these writings, the vastest literature ever known, are still extant. Unlike the German races, the Arabs brought with them a finished language and a store of poetry, as well as their own religion.

The centres of Arabian civilisation were the great Moslem cities of Bagdad, Damascus, Cairo and Cordova. The genius of the Arabs lay chiefly in their power to absorb and improve upon the achievements of others. They learned all they could from the Greeks, Romans, Jews, Persians and Hebrews, and from it built up a culture far surpassing that of western Europe.

Agriculture.—The Arabs made many improvements in agriculture, practising rotation of crops and using fertilisers. They had a good system of irrigation and understood grafting and producing new varieties of plants and fruits. Arabs loved gardening, and brought into Spain and Sicily camellias, jasmine, yellow roses, artichokes, asparagus, oranges, apricots and other fruits and flowers. From the Arabs, too, we have received rice, coffee, the sugar cane, flax, cotton, buckwheat, hemp, various vegetables including beans, and fruits such as melons, lemons and plums.

Manufactures —During the early Middle Ages the peoples of Europe obtained most of their articles of luxury from the Arabs. They understood dyeing, made a kind of paper, and their weaving and pottery far excelled any in western Europe. Metal work and textile fabrics were noted for beauty of design and exquisite workmanship. From Damascus came the famous blades of tempered steel, beautiful brocades and tapestries In Spain Moorish cities were famous for special productions,—leather from Cordova, splendid silks from Granada, and armour from Toledo. Even the Venetians were taught by Arab craftsmen to make their crystal and plate glass.

The religion of the Arabs made work a duty. Commerce and agriculture were considered as pleasing to God. Much respect was shown to all those in trade; even persons of high position were merchants, tailors, druggists and jewellers. Free passage was made through armies for merchandise, roads were made safe, in the desert water was

provided in wells and cisterns, and at certain points inns for caravans were built.

Literature and education.—In Moslem lands, schools and universities flourished, while Europe was still in the "Dark Ages." From the ninth to the fifteenth century many books, still existing, were written, and from these many copies were made. These writings contain invaluable material for a history of the Middle Ages, accounts of voyages, and the idea of the first biographical dictionary Extensive libraries were carefully catalogued In everything the Arabs have shown extraordinary industry and ability. They restored to Europe a knowledge of the ancient Greek authors, whose language had been forgotten Every branch of art and learning was studied and copied by the Arabs, but they had creative art and were not mere copyists. They had a passion for books, and their rulers had tremendous libraries of books, every word of which had been copied carefully by hand The flowing Arabic script was more easy to copy than the separate Roman letters and there were many copyists, for it is said that under the Saracen rule of Spain every man and woman could read and write

The Saracens were a poetic race; from the eighth century onwards, caliphs encouraged poets and song writers to stay at their courts. Their poems included love songs, epic poems and religious verse The two Moslem writings in prose and verse which have become very widely known in Europe are the *Thousand and One Nights* and the *Rubáiyát* of Omar Khayyám The *Thousand and One Nights* is a collection of tales, written in Arabic, many of which are gathered from early Arabic sources The book appears to have been put together about the fifteenth century, the stories describe life and manners at the caliphs' courts, and all are distinctively Moslem in colouring.

Omar Khayyám was the astronomer-poet of Persia; he wrote about the beginning of the twelfth century. There are some five hundred quatrains in his *Rubáiyát*, where wit, satire and melancholy are mingled. In his poem he puts forward his view of life

"A chequer board of nights and days,
Where Destiny with men for pieces plays."

Geography and science.—There are many records of Arab voyages across the Indian Ocean and down the coasts of Africa by the help of the compass and astrolabe long before the Christian nations knew those instruments The Arabs were the best geographers of the Middle Ages, for their great trade, their wide conquests and their religious pilgrimages to Mecca vastly increased their knowledge of the world. Before Marco Polo went to China, Arabs journeyed over Asia, and across the Sahara from Morocco to Timbuctoo. One of the caliphs had the Greek *Geography* of Ptolemy translated into Arabic with added maps Encyclopaedias describing foreign countries and peoples were compiled by Arab scholars, five centuries before Louis XIV had a degree of the meridian measured geometrically to find out the size of the earth, astronomers of Bagdad had performed the same operation

The Arabs preserved what science was known to the Greeks,—the philosophy of Aristotle and Plato, the works of Hippocrates, Dioscorides, Euclid, Ptolemy, Strabo and many other less illustrious grammarians, rhetoricians and sophists Having studied the various branches of knowledge possessed by the ancient Greeks, and having enlarged these studies in all directions, the Arabs laid them open to the peoples of Europe, Spain being naturally the first to take and hand on these gifts. In the tenth century, the time of the most profound ignorance of the Middle Ages, Spain had several illustrious scholars well versed in mathematics and astronomy.

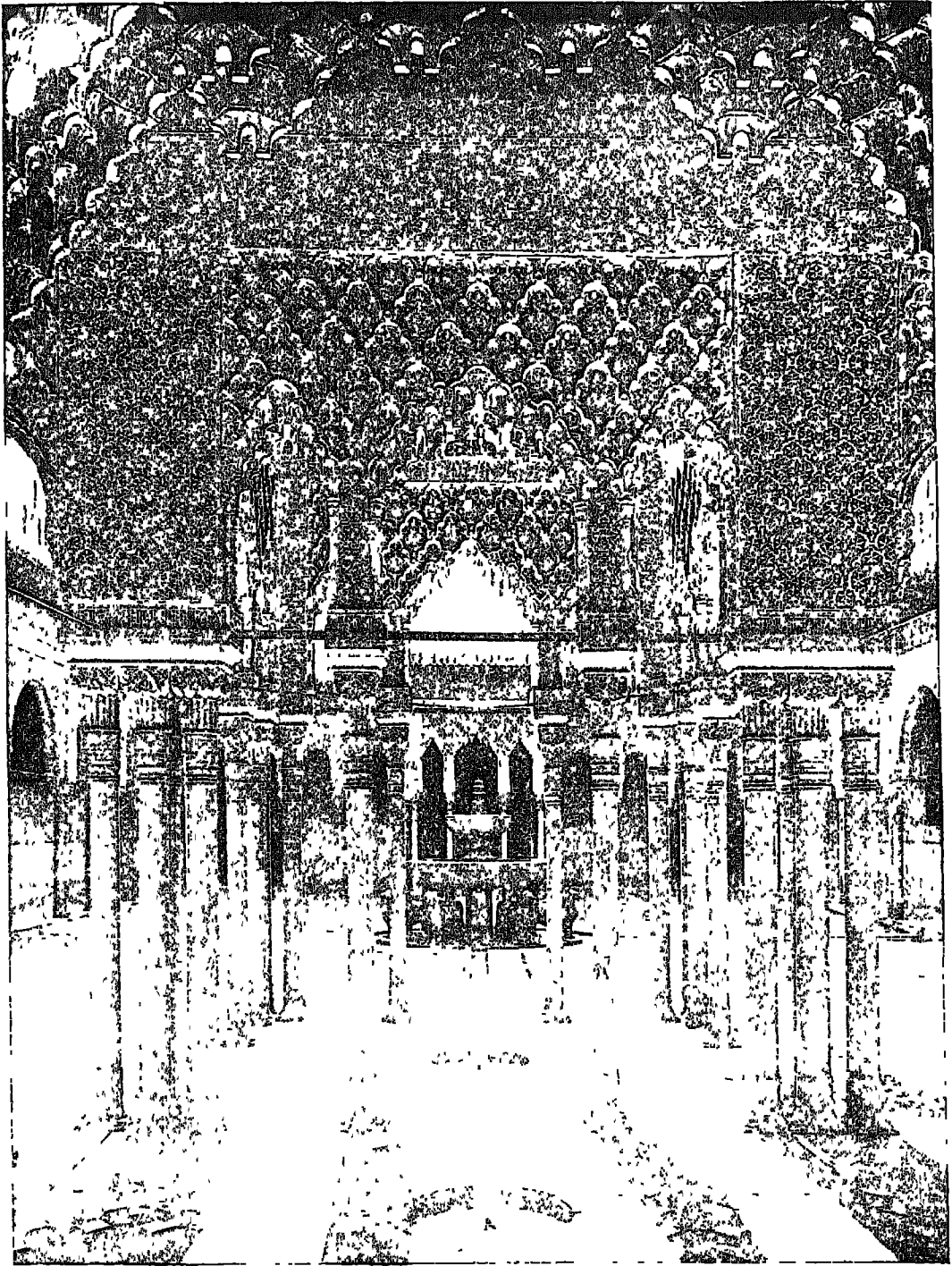
The Arabs were most successful in mathematics. In arithmetic they used our present system of numerals, the so-called Arabic figures; in the twelfth century they introduced zero, and thus were able to make calculations by decimals; they studied

algebra, and developed the theory of trigonometry. Gerbert, afterwards Pope Sylvester II., renowned for his adventures, his learning and his labours, learned most of what he knew from the Arabs, and his knowledge, which to the world appeared supernatural, was "stolen from the Saracens." He was even accused of having given himself over to the devil, as being the only explanation of such prodigious learning. Gerbert is said to have introduced the Arabic figures into France, Germany and Italy, together with some ideas of algebra, he has the credit also of being the first to make clocks. Gerbert is believed to have studied in the homes of the Arabs in Cordova and Seville, after vainly trying elsewhere to satisfy his thirst for learning. After him followed other eager students to gather in Spain the rudiments of mathematics, physics and astronomy. Algebra is practically the creation of the Arabs; in geometry they added little to Euclid; other Arabic inventions are conic sections and spherical trigonometry.

All their special mathematical knowledge enabled the Arabs to make good progress in astronomy, in the ninth century observatories were raised at Bagdad and Damascus. The gnomon and the sextant, still in use, were astronomical instruments constructed by the Arabs.

Medicine and chemistry.—The Arabs have influenced the knowledge of the natural sciences of chemistry and medicine. They were comparatively skilful chemists; they discovered alcohol, aqua regia, corrosive sublimate and other new compounds; they understood the preparation of mercury and of various oxides of metals. Roger Bacon and Raymond Lully studied their works on alchemy. It was from Spain that all the doctors in Europe came, and through them the love of science and learning was spread. The Arabs also practised many difficult surgical operations, they studied hygiene and physiology, they wrote treatises on diseases like small-pox and measles, they dissected the human body, and they used anaesthetics. (In England anaesthetics were not in use until after Queen Victoria had ascended the throne.) The famous medical school of Salerno, whose teachings were once followed all over Europe, owes its origin to the Arabs. It will be remembered that in *The Talisman* Sir Walter Scott writes of the medical skill of Saladin in curing Richard I.

Architecture.—Architecture, the only one of the fine arts which religion allowed the Moslems to practise, reached a high level of excellence. The distinguishing mark of the Moslem architecture is the horseshoe arch, and that of Christian architecture is the pointed arch (substituted for the pagan round arch). But the Arabs had used the pointed arch before the Christians. Probably the name Gothic is used for the pointed arch style because its use dated from the time when Spain was the domain of the Goths. A striking resemblance exists between the Arab monuments and those of the Middle Ages. A Saracen architect was called in for the church of Notre Dame in Paris. In the present cloisters of Norwich cathedral there is the arch like those in Cordova.

In architecture the Arabs borrowed the horseshoe arch from the Visigoths, the dome from the Byzantines, and the abundance of ornament from the Persians, but their own genius appeared in the delicate minarets, the intricate carving, and the bulb-shaped domes. The highest point reached in Arab art is shown in the Alhambra at Granada. The exterior is simple yet dignified, the entrance is merely an immense arch. But within is seen every manifestation of genius—immense gilded and painted galleries, arcades of many designs cut up with festoons, in stalactites, and with abundance of stucco open-work. The celebrated Court of the Lions measures 116 feet in length by 66 feet in breadth. Surrounding the court is a gallery supported by marble columns and in the centre is the Fountain of Lions, a magnificent basin of alabaster resting on the backs of twelve lions in white marble. The colours

[*Photo* E N A.

THE COURT OF THE LIONS—THE ALHAMBRA, GRANADA

of the halls surrounding the Court of Lions still keep their brilliance Water gushes between innumerable little columns picturesquely arranged; it flows into marble trenches, forms cascades, and throws up jets of spray to water the surrounding shrubs and flowers. On all sides there are inscriptions expressing noble sentiments This palace of charm and marvel was partly destroyed by Christian kings. The principal halls of this ancient dwelling place of Moorish kings are decorated in plaster, the relief is geometrical but is of great beauty and delicacy. The paintings have been protected by the Andalusian climate and the colours are still fresh to-day.

CHILDREN'S STORY

Mohammed's message.—During the time that Edwin of Northumbria and his people were learning about Christ, a notable man called Mohammed was preaching a new religion in a distant country called Arabia Most of this great country is a waterless desert inhabited by wandering tribes of shepherd-men, who ride on camels and swift horses by day, and sleep in tents of camels' hair at night. Along the southern and western coasts of Arabia, between the mountains and the sea, the land will grow good crops, and here are the chief towns to which the caravans bring hides, fruit and perfumes to exchange for goods brought across the Red Sea from Egypt and other lands

In one of these towns, called Mecca, was born the famous Arab teacher Mohammed To the Arabs Mecca was a holy city, for in it was the small stone temple of the Ka'Ba, into a wall of which was built a Black Stone which was supposed to have been brought from heaven In this temple were three hundred and sixty idols For four months in every year the Arab tribes ceased from fighting and went up to Mecca to buy and sell in the fairs and to visit the holy temple

Mohammed's father and mother died when he was young, and he was brought up by his uncle As a boy he tended sheep on the hillsides of Mecca, and when still a youth he became a camel driver and crossed the deserts with caravans. When he grew up he married a rich lady named Khadija, whom he loved dearly, and for many years he was a prosperous merchant of Mecca

Mohammed was not content to serve idols as the Arabs did, and he would often slip away quietly to a lonely cave in a wild rocky valley outside Mecca, where he would sit for days thinking about God. One day, after one of his lonely watchings, he told Khadija that he had dreamed that God's messenger, the angel Gabriel, had come to him bidding him to go out into the world and preach a new religion to the Arabs. The message he had to preach was, "There is no god but Allah, and Mohammed is the prophet of Allah" Khadija believed that this vision had come from God, and she encouraged Mohammed to spread the message. Later, other visions came to him, and sometimes in his sleep he would speak wise words His friends wrote them down on skins, bones, bits of parchment and leaves of palm trees, and after he was dead his words were gathered together into a book This book is the Koran, the sacred writings of followers of Mohammed.

Mohammed's teaching.—Mohammed began by telling his friends and relatives of the one God, and as he gained more followers he grew bolder, and at last made up his mind to proclaim his message to all the people of Mecca. Old writers tell us that he was now a handsome man with flashing black eyes and a thick, bushy beard Whoever saw him for the first time was struck by his noble presence His kindly smile won their hearts and they soon learned to love him Most of the citizens of Mecca, however, would have nothing to do with his teachings, and they looked on him as a madman In these difficult days Mohammed's best friend was his noble wife "Never was there a wife like Khadija," once said Mohammed. "She believed in me when men despised me, she relieved me when I was poor and

despised by the world" At last the hatred of his enemies grew so fierce that Mohammed and a faithful friend were obliged to flee to the city of Medina, two hundred miles away It was a long and toilsome journey, and many stories are told of their adventures on the way. One story relates how horsemen pursued the fugitives, who took refuge in a cave. While they lay there trembling, spiders spun their webs across the entrance, so that when the horsemen came up they did not trouble to search inside, for they said, "No one can have entered that cave for a long while, for, look, the spiders' webs have not been broken"

At Medina the people welcomed Mohammed gladly and made him their chief magistrate He was now able to teach in peace. The first mosque, a simple building made of the wood of date palms, which was erected soon after his arrival at Medina, became a sacred centre of his teaching. The year of his flight to Medina, A D 622, is the most important year in the history of the Arabs, for it marks the beginning of the Mohammedan religion, and the people date all their years from it, as we date ours from the birth of Christ. Mohammed's teaching was very simple. There were five chief rules of life which every man must keep: (1) He must believe that "There is no god but Allah, and Mohammed is the prophet of Allah" (2) He must pray to Allah five times a day, turning towards Mecca with his head bowed to the ground, and before prayer he must wash his hands, face and feet. (3) During the ninth month of the year, the year when the angel Gabriel revealed his message to Mohammed, he must fast from morning to night. (4) He must give alms to the poor. (5) He must "if he is able" once in his lifetime go on pilgrimage to Mecca In the Koran are other rules which all must observe, such as never to take wine or other strong drink, to be kind to widows and orphans, to slaves and animals.

The Arab empire.—To spread the new religion Mohammed and his followers used the sword Seven years after the flight to Medina, Mohammed went back to Mecca with a great armed force, and he took the city with little fighting He rode seven times round the Ka'Ba on his camel, as was the custom, and then broke in pieces all the idols and dedicated the temple to the one true God

After the capture of Mecca most of the Arabs accepted the new religion and it soon spread to other countries The teaching of Mohammed, indeed, still goes on spreading especially in India and Africa, and every year thousands of pilgrims visit Mecca. Mohammed died in A D. 632, at Medina, where his tomb is still visited by faithful Mohammedans Within ten years after his death the Arabs had spread east and west, conquering many lands. In the East they seized the Roman provinces of Syria and Palestine, with the famous cities of Damascus, Antioch and Jerusalem. They took the Land of the Two Rivers from the Persians, and later conquered all Persia and entered India Egypt, too, was won by the Arabs, whose soldiers none could stop The conquerors did not treat their enemies cruelly, but allowed them to live in their own way so long as they paid a heavy tribute.

During the years 716-717 the Arabs went with a great army and many ships to seize Constantinople, but here the emperor and his Roman soldiers fought so bravely that the Arabs had to retreat. In the West the Arabs overran all the coast of North Africa, and then they crossed the narrow strait and entered Spain Within a few years they had conquered the country, and they swept over the Pyrenees into Gaul. Here at last they were stopped. Charles Martel, the chief minister of the king of the Franks, had collected a great army at Tours. A terrific battle took place, but in the end the Franks were the victors and the Arabs were driven back over the Pyrenees into Spain, A.D. 737

The empire in the East was ruled by a caliph who lived in a gorgeous palace at Bagdad, a city which the Arabs built near

the old city of Babylon. Here at one time ruled the famous caliph, Harun-al-Rashid, to whom his wife used to tell the wonderful stories which we know by the name of the *Arabian Nights.* In these stories we learn much about the splendid palace standing in shady gardens where scented fountains played, and of the costly robes and jewels, carpets and tapestries which belonged to the caliph In the West another caliph or emir ruled at Cordova in Spain, and here and in other parts of the country the Arabs erected many beautiful buildings, one of which, the Alhambra at Granada, is world-famous.

The Arabs were clever people among whom were many famous scholars They learned much from the writings of the Greeks and Romans, and then they thought more about the matters themselves and wrote their own books In Spain there were many huge libraries in which all the books were written by hand. The writing of the Arabs was more quickly done than that of the monks. It is said that there were as many as four hundred thousand books in the library at Cordova. The Arabs wrote books on geography, arithmetic, algebra, the stars, medicine, gardening and many other subjects The names of some things we owe the Arabs begin with *al*, such as algebra, almanac, alchemy (an old word for chemistry) and alcohol Many of the things we eat and some of those used in making our clothes first became known in Europe through the Arabs. From them we have received rice, sugar cane, coffee, beans, oranges, lemons, apricots, plums, cotton, flax, hemp and many more besides. The Arabs were clever workers in leather, steel, tapestries and carpets. Have you heard of Damascus steel, Cordova leather, Toledo armour, Granada silk, Venetian glass? All these famous manufactures are due to the clever Arabs, for they were keen merchants who brought their wares from distant China and India, and from the middle of Africa and Russia to sell at their bazaars The greatest trading city was Bagdad, which was the centre of the caravan routes of Asia as well as a port for ships.

The Arabs, too, gave us another and quicker way of writing numbers Here are some Roman figures like those used on most clock faces and below them are the Arabic figures.

I	II	III	IV	V	VI	VII	VIII	IX
1	2	3	4	5	6	7	8	9

X	XX	L	C	D	M
10	20	50	100	500	1000

Now look at this number written in the Roman way, MDCCCLXXVI, and then see if you can write it from the Arabic figures. You will find that written in the Arabic way there are only four instead of ten figures

In one way we owe all these things and many more to Mohammed the Prophet, for it was through his teaching that the Arabs became united into a great nation which set out to conquer many lands, and then taught others something of their wisdom.

TEACHING HINTS

1. Mohammed's lonely watching.—The life of solitude in the cave as a preparation for Mohammed's teachings might be compared with the early life of St. Benedict.

2. The dates of the Hegira.—Opportunity should be taken here once again to revise the children's knowledge of our own system of counting the years from the Birth of Christ. The terms A.D. and B C. should be revised frequently, or the children will be unable to acquire a "time sense."

3. Meanings of names.—There are many names associated with this lesson which the teacher may like to explain to the children. Some of the most important are the following:—*Mohammed*—praiseworthy (the earlier spelling was *Mahomet* and it is

now often spelt *Muhammad*), *Moslem*—one who surrenders himself (to God's will); *Hegira*—flight of the prophet; *Islam*—surrender, or resignation; *Koran*—thing read, or thing recited, *Allah Akbar*—God is Great, *jihad*—holy war; *Gibraltar*—Gibal al Tarik, "the mountain of Tarik," the leader of the Arab forces that crossed the strait from Africa to Spain, *Harun-al-Rashid*—Aaron the Just, *caliph*—successor.

4. Mosque.—A Mohammedan place of worship is called a mosque. From the tall minaret of the mosque the muezzin or crier announces the hours of prayer Among the most famous are the so-called Mosque of Omar at Jerusalem and the Great Mosque of Cordova

5. Names of some common articles.—The European names reveal the Arabic source of some well-known articles:—*damask*—from Damascus, *muslin*—from Mosel, *gauze*—from Gaza, *cordovan* (leather)—from Cordova; *morocco* (leather)—from North Africa.

6. The reign of Harun-al-Rashid (hă-rōōń ar rah´ shēd) was one of the most brilliant in the annals of the caliphates of Bagdad. He reigned from A D 763 to 809, and was contemporary with Charlemagne, to whom he sent presents, among which were elephants and a water clock which struck the hours. He was a scholar and poet and is known to western readers as the hero of the stories in the *Thousand and One Nights*, popularly known as *The Arabian Nights*.

7. Memory work.—(*a*) The Arabs lived in the deserts of Arabia, and formerly worshipped many gods of whom they made images or idols. (*b*) Mohammed came to believe that there was only one true God, and that God had sent him to tell this to all the world (*c*) Those who followed his teaching were called Mohammedans, and they spread their religion by the sword (*d*) After a hundred years of fighting they had conquered a great empire, and in it they settled down and learned to live at peace. (*e*) The Arabs were clever people among whom were many famous scholars.

8. Exercises.—(*a*) Who was Mohammed? (*b*) Where and when did he live? (*c*) Describe his life as a young man. (*d*) Why did he choose to live for long periods alone? (*e*) What message did he preach? (*f*) What is the Koran? (*g*) How do old writers describe Mohammed? (*h*) Why do Arabs make pilgrimages to Mecca? (*i*) Why do they visit Medina? (*j*) What do you know of the rules that Mohammed taught his followers? (*k*) How was the religion of Mohammed spread far and wide? (*l*) What do you know of the book called *The Arabian Nights*? (*m*) Tell of some of the things we learned from the Arabs.

9. Children's summary.—The following device may be found useful to impress the story on the children's minds and to help them to express their ideas in sentences·

Mohammed was the prophet of the Arabs
Only a few followers believed in Mohammed at first
Heavenly messengers came to Mohammed.
A faithful Mohammedan must pray five times a day.
Mecca is the holy city of the Mohammedans.
Many lands were conquered by the Arabs.
Every year thousands of pilgrims visit Mecca.
Dumb animals are treated kindly by the Arabs.

XIV. CHARLEMAGNE

PICTURE REFERENCE

WITTEKIND SUBMITS TO KING CHARLEMAGNE

(Class Picture No 37 in the portfolio)

INTRODUCTION

Early mediaeval Europe.—The downfall of the Roman Empire in the West was completed by the deposition of the Roman emperor Romulus Augustulus in A D. 476, but power in the West still remained for many years centred in Italy. At first it was in the hands of a German barbarian, Odoacer, who for thirteen years ruled Italy with considerable success, modelling his government on the lines of that of the empire, and doing homage to the emperor at Constantinople. In A D. 493 his kingdom was overthrown by the Ostrogoths, under Theodoric, the greatest ruler ever produced by the Gothic nation. He marched with his people—men, women and children—across the Alps and defeated Odoacer in several battles. Odoacer shut himself up in the fortress of Ravenna, which Theodoric found too strong to capture He offered to make terms with Odoacer to share the kingdom between them, but when they met at a great feast to discuss the matter Theodoric treacherously murdered his rival In spite of his violent occupation of the throne he proved a wise and humane ruler. Having lived as a youth at the court of Constantinople he was well acquainted with Roman ideals, and for thirty-three years (A.D 495-526) he ruled Italy with marked success. During the years of peace agriculture improved so rapidly that Italy actually began to export wheat where before it had been necessary to import it. At his capital city, Ravenna, Theodoric erected a palace, a mausoleum and several churches, remains of which still exist It seemed as if the empire in the West might be restored under a number of powerful rulers such as Theodoric.

But it was not to be. A year after Theodoric's death the great emperor Justinian came to the throne of Constantinople He immediately began the recapture of the provinces of Africa from the Vandals, Sicily and Italy from the Goths; he sent his armies into Italy and after a fierce struggle drove the Ostrogoths through the passes of the Alps, thus breaking up the Ostrogothic kingdom During the remainder of Justinian's reign Italy remained in the power of the eastern emperor.

After Justinian's death, however, in A D 565, Italy was once more invaded by a Germanic tribe called Lombards. This tribe is thought to have derived its name, which in Latin is *Longobardi*, from the long beards worn by the warriors. The Lombards settled in the land north of the Po (which is still known as Lombardy), their capital was established at Pavia, and though they made settlements throughout Italy they never succeeded in subduing the whole peninsula. Sicily, the extreme south of the peninsula, and large districts containing the cities of Rome, Venice, Naples, Genoa and Ravenna were not conquered, and remained under the rule of the emperor at Constantinople These territories, however, were now isolated, and gradually they formed independent states which were never united into one kingdom until modern times.

The Lombards were originally heathen, but about the time of their conquests in Italy they adopted Arian Christianity. They were a fierce race, and treated the conquered harshly, but gradually they accepted Roman Catholicism and learned to speak Latin. The kingdom which they founded endured for two hundred years, till the Lombards in their turn were conquered by the Franks.

The Franks were a loose-knit body of wild Germanic tribes populating the lands north of the Rhine. In A D 481 they came under the rule of Clovis, who unified them under his leadership and led them out to conquer. They defeated an army in Gaul, led by the Roman governor of the province, and this victory destroyed the last remnants of Roman power in the West. In the years that followed, Clovis made himself ruler over nearly the whole of Gaul, and even extended his authority across the Rhine. He thus laid the foundations of unity among the Frankish people, which afterwards became

known as the French nation For this reason Clovis is rightly regarded by the French as a national hero, and his name, in the modified form "Louis" (with the *C* omitted and the *v* changed to *u*) was borne by no fewer than eighteen French monarchs. As a statesman Clovis ranks with his great contemporary, Theodoric.

Up to the opening of their career of conquest, the Franks had been heathens. Clovis, however, married a princess from Burgundy named Clotilda, who was an earnest Christian Clovis is said to have been converted after a successful battle before which he had vowed allegiance to his wife's God if he should win He kept his word, and when the Franks won the battle, he and many of his men were baptised by the bishop of Reims. Later French monarchs were crowned at Reims in memory of their great ancestor

ST. MATTHEW, FROM THE GOSPEL BOOK OF ST BONIFACE

St Boniface, having resigned his bishopric of Mainz, went, in A D 754, as a missionary to Frisia, and was there martyred on June 5, 755 His remains were afterwards removed to Fulda, an abbey which he had founded in Bavaria One of the three small books found on the site of his martyrdom was a small octavo volume containing the Gospels written in a very small minuscule Irish character, and adorned with figures of the four Evangelists, one of which is reproduced here.

The conversion of Clovis was an event of great political importance, since it gained for the Frankish king and his successors the alliance of the increasingly powerful Church of Rome. The Popes naturally gave their full support to so important a convert, and the friendship which thus developed between the Popes and the Frankish kings had a great influence on the later history of Europe

So strong was the national foundation laid by Clovis that even the growing feebleness of the kings who followed him—the Merovingians, or so-called "do-nothing kings," (rois fainéants)—could not weaken it. The power simply passed into the hands of the chief men of the realm, the major domos, or "mayors of the palace," and it was they who ruled while the kings remained puppets.

It was under the leadership of one of these strong rulers, Charles Martel, or the *Hammer*, that the Franks first showed their new strength At the battle of Tours in A D 732, (as was told in the story of Mohammed), they defeated the Arab invaders and drove them out of France, thus saving western Christendom from Islam Charles Martel, in spite of his power, never attempted to make himself king, but his son Pepin, after obtaining the Pope's sanction, deposed the last feeble Merovingian king, cut off his long hair, the symbol of royalty, and

sent him to a monastery. Pepin himself was crowned by Pope Stephen II "king of the Franks by the grace of God," A D 751

The long-standing alliance between the Franks and the Roman Church was strengthened by this event, and it was even further cemented in 754 when an opportunity arose for Pepin to repay his obligations to the Roman Church. The Pope's territory was being menaced by the Lombards, and to obtain aid from the Frankish king he crossed the Alps in person and appeared as a suppliant at Pepin's court. It is said that Pepin went three miles on foot to meet him and himself led the Pope's horse back to the city The story shows the deep reverence felt for the Church and its dignitaries even by rude barbarian chieftains With the king was his young son, Charles, then only fourteen years old, but destined to be known to history as Charlemagne.

Pepin promised the required aid, in return for which the Pope crowned him at Paris for the second time, anointing him and all his family with holy oil and charging the Franks that "throughout all future ages neither they nor their posterity should ever presume to appoint a king over themselves from any other family."

Pepin and his men then twice entered Italy, defeated the Lombards and forced them to cede to the Pope a large tract of land between Rome and Ravenna. This land had originally belonged to the eastern emperor at Constantinople, but Pepin, declaring that the territory was his by right of conquest, bestowed it on the Pope. This gift, known as the "donation of Pepin," greatly increased the property of the Popes, and served also to augment their power, which was soon to become the greatest force in Europe.

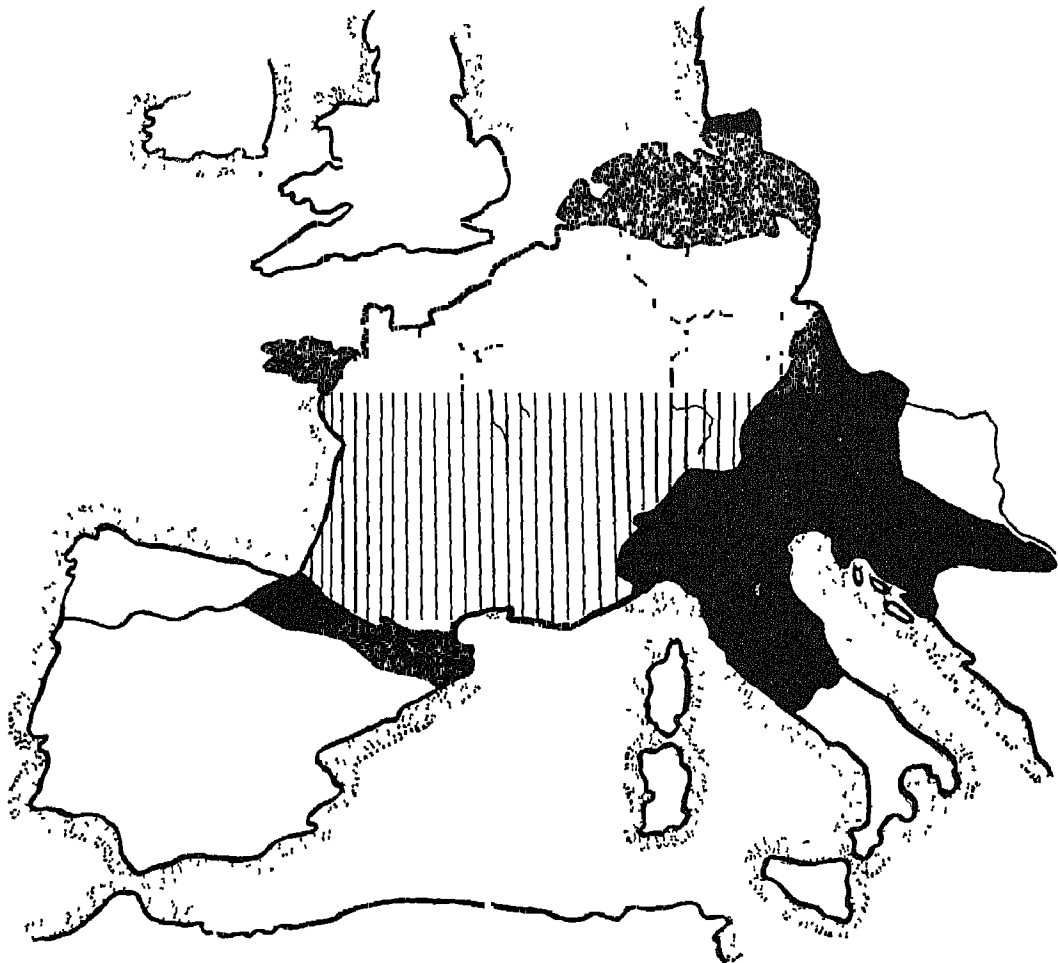
Charlemagne.—Pepin was succeeded by his son, Charles, who reigned for nearly half a century (A.D. 771-814), and whose profound influence on European history earned him the title of Charles the Great (in Latin, *Carolus Magnus*, in French, *Charlemagne*) Charlemagne the man is well known to us from a short biography of him written by his secretary, Einhard or Eginhard. We read of him there as a strong and vigorous man, fond of all outdoor sports such as hunting, riding and swimming, and temperate in his habits. His personality was commanding, and his expression both lively and full of dignity He was a fluent speaker who could discourse or read in Latin as well as in his native tongue, and he had also some knowledge of Greek As a child he had received but little education, and strove in vain in later years to learn to write. "He made," says Einhard, "but little progress in the task, too long deferred and begun too late in life "

Charlemagne was equally great both as a warrior and a statesman. Much of his long life was inevitably spent in warfare against the hostile tribes around him. Of these, the Saxons, dwelling in the forests and marshlands on the north-west borders of Germany, gave him the most trouble No sooner had he subdued a district and left it to pursue his conquests elsewhere, than the conquered Saxons would rise and throw off their allegiance once more Their most noted leader was Wittekind, an account of whom is given in the Reference Book. The means which Charlemagne finally adopted of subduing the rebels was to massacre prisoners of war and to threaten with death any who did not receive Christian baptism These ferocious methods eventually proved effective, and he finally succeeded in Christianising and including in the Frankish kingdom all the lands from the Rhine to the Elbe

While still engaged in his Saxon wars, Charlemagne received an appeal from the Pope, who was once more threatened by the Lombards. Charlemagne, at the head of a vast army, crossed the Alps, crushed the Lombards and added their lands to his possessions. He assumed the famous "Iron Crown of Lombardy," said to have been made from one of the nails of the Cross and still preserved in Italy to-day, and took the title of "King of the Franks and Lombards,

and patrician of the Romans." The Lombards now passed out of history

Charlemagne was not content with conquests only among the neighbouring German tribes. He forced various Slav races, such as the Bohemians, to acknowledge his supremacy and to pay him tribute In Spain he fought the Moslems and took from them the land between the Ebro and the Pyrenees, thus beginning the re-conquest of Spain from the Mohammedans.

The empire of Charlemagne included at its widest extent all modern France, Holland and Belgium, much of Germany and parts of Italy and Spain In administering this great realm he showed the same ability as he had displayed in conquering it. He divided his territories into counties, each under the rule of a count, whose duty was to keep order and to see justice done In the border districts or "marches," which were always liable to invasion, he placed military

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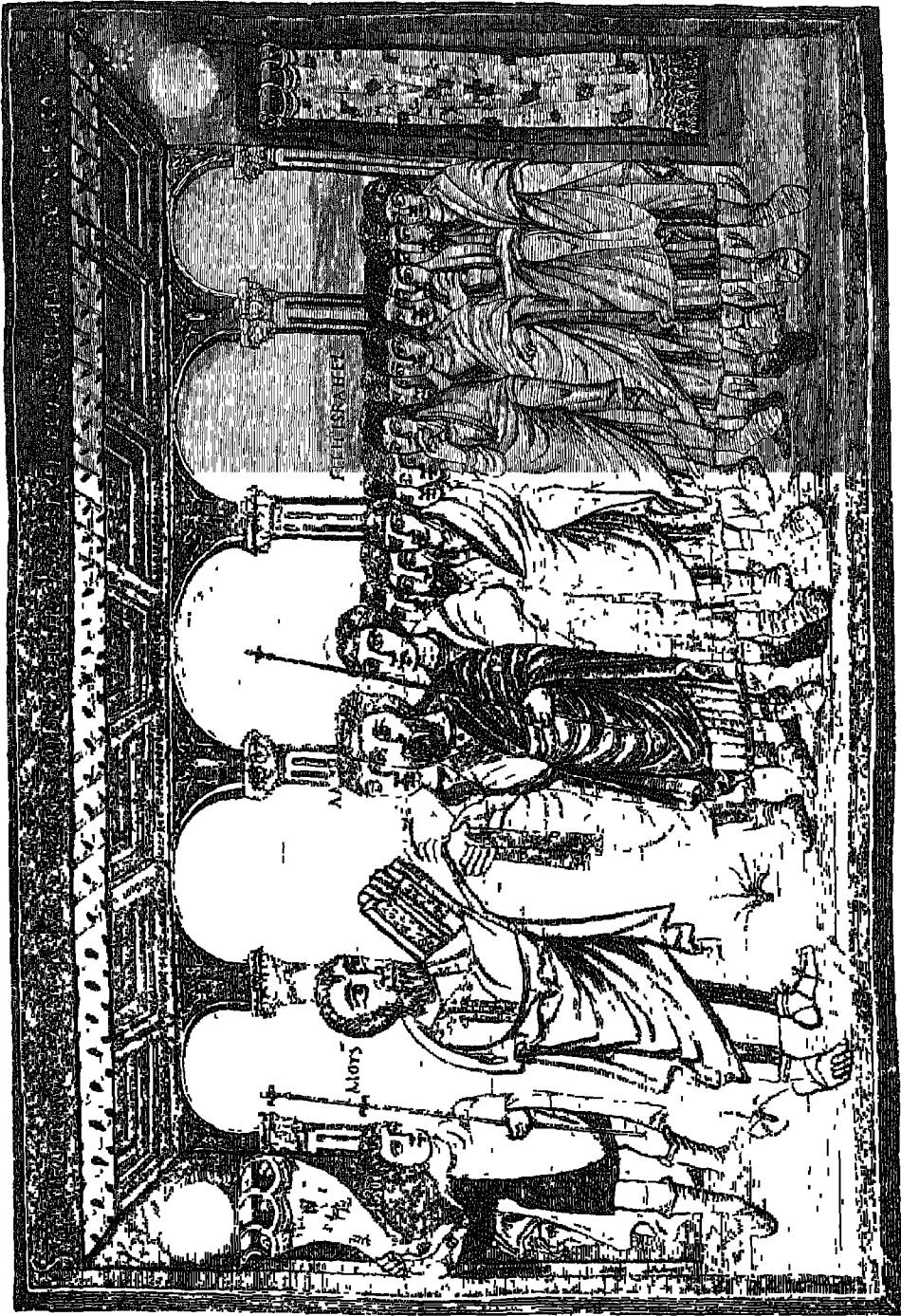

MOSES GIVING THE LAW

Part of a full-page illumination placed opposite the beginning of Exodus in Alcuin's Bible The picture shows Moses delivering the Law to Aaron and the people of Israel. It is thought that these two figures may be identified with Alcuin and Charles, the great teacher presenting his work to the Emperor. The sons of Israel are in the garb of Roman senators

Alcuin's Bible. MS Add 10546, *British Museum*

rulers who were known as margraves, or "counts of the marches." To ensure that order was maintained even in the most distant counties, the king instituted a system of messengers, *missi dominici*—"the lord's messengers." These *missi* were usually sent out in pairs, a bishop or abbot and a layman together, so that each might serve as a check on the other They travelled from one county to another, bearing the king's commands and seeing that they were obeyed. In this way, in an age when communication was difficult, Charlemagne succeeded in keeping himself in touch with every part of his realm.

Charlemagne and learning.—Having by these wise measures secured law and order in the kingdom, the king next turned his attention to the condition of learning He founded cathedral schools, and ordered that monasteries should have attached to them schools in which the common people as well as the clerics might receive education. His court became a palace school, or academy, where famous scholars from Italy, Spain and England taught the king, his nobles and their children. Charlemagne's great dream was to stimulate learning throughout his kingdom, and to teach the Franks the Latin language. A knowledge of Latin was the only means of access to the Latin books of literature and science which contained all the culture of the ancient world.

The revival of learning which rewarded the king's efforts has been called the Carolingian Renaissance. The greatest figure in it was Alcuin of York, an Englishman, and the foremost scholar of western Europe Charlemagne met him in Italy on a mission to the Pope and persuaded him to come to his court at Aachen (Aix-la-Chapelle) where the king and the scholar became firm friends. Many of the letters which passed between the two have been preserved, and they give a clear idea of the aims and methods of these early educationists The following was written by Alcuin to his royal master after he had been made abbot of St. Martin's monastery at Tours. "In obedience to your exhortation and wise desire, I apply myself in serving out to some of my pupils in this house of St Martin the honey of the holy writings; I try to intoxicate others with the old wine of antique studies, one class I nourish with the fruits of grammatical science; in the eyes of another I display the order of the stars. I have schools of singers, many of whom are already sufficiently instructed to be able to teach others. I have also done in this church what lay in my power in the copying of books" This collecting and copying of the manuscripts of Latin authors was one of the chief labours of Alcuin Many of these copies, in a singularly beautiful character, are still extant.

Charlemagne's zeal for learning was equalled by his religious fervour. His desire to spread the Gospel led him to force the nations which he conquered to accept Christianity. Throughout his life he was a ready champion of the Popes against their enemies, while in their turn they relied on his protection and support to such an extent that Charlemagne was tacitly acknowledged to be "king of Rome" He took a keen interest in theology and had a considerable share in the religious discussions of the time He reformed the Frankish church services, insisting that they should be conducted with perfect decorum, and engaging singers from Rome to beautify them Both within and without his kingdom he was liberal in alms-giving In private life he was extremely devout in his attendance at church, and in his royal town of Aachen he caused a magnificent chapel to be built, adjoining his royal palace This chapel has become the cathedral of Aachen, many parts of which date

B.C. —800 —700 —600 —500 —400 —300 —200 —100 —0 A.D. —100 —200 —300 —400 —500 —600 —700 ◄ —800 —900 —1000

back to the ninth century The bronze west doors, for example, were put up by order of Charlemagne himself.

The revival of the Roman Empire under Charlemagne.—As the most powerful and the most Christian prince in Europe, Charlemagne seemed to all men to be the true successor of the Roman emperors He held imperial power, and lacked only the imperial title to make him emperor indeed. This title he was now to receive In the year A D. 800 Pope Leo III. appealed to Charlemagne for help in clearing himself of certain accusations made against him at Rome. Charlemagne saw the Pope cleared of the charges and reinstated him in the Papal chair The Frankish king stayed on at Rome for about a month, and on Christmas Day, as he knelt in prayer in St Peter's Church before Mass, the Pope suddenly placed on his head an imperial crown As if at a signal, all in the church raised with one voice the cry, "Long life and health to Charles the August, the great and pacific emperor of the Romans, crowned by God"

Charlemagne appeared to be surprised by the Pope's action. It is known, however, that he had long wished for the title of emperor since, though it gave him no more power than he already wielded as king of the Franks, it increased enormously the honour and esteem in which his person was held In the years immediately following his coronation the caliph of Bagdad, Harun-al-Rashid, sent him gifts, and the patriarch of Jerusalem presented him with the keys of the Holy Sepulchre Charlemagne was thus recognised as the great champion of Christendom.

The action of the Pope in crowning Charlemagne caused general satisfaction. The Pope himself was glad to reward in this way the conqueror of the Moslems in Spain and the protector of the Church, whose missionary zeal had spread Christianity throughout central Europe. The Roman people also rejoiced, for they felt that the appointment of a western emperor would emancipate Rome from the galling rule of the emperor in the East. They hoped that in time Rome would once more become the capital of the world. Thus the action of the Pope was of profound importance in mediaeval history, since the men of the day believed that it had restored the Roman Empire, and that the Frankish king who sat on the imperial throne held his position in direct descent from Augustus and Constantine The title of "Holy Roman Emperor" assumed by the successors of Charlemagne was kept by them till the beginning of the nineteenth century.

In actual fact, the empire of Charlemagne cannot be regarded as a continuation of the older Roman Empire. The greater part of the lands which the Roman emperors had ruled were still in the hands of the emperors in the East, while the rulers in the West were Germans with German ideas, laws and customs, very different from those of the Romans. The so-called "Roman Empire" of the Middle Ages was, in fact, little more than an idea in men's minds.

Charlemagne continued to reign for fourteen years after his coronation as emperor. This period was mainly occupied in fighting, and in the attempt to divide his empire among his three legitimate sons In A D 814 the emperor died at the age of sixty-six.

The memory of Charlemagne, like that of King Arthur, rapidly became surrounded by a halo of romance Like the British king, the Charlemagne of heroic legend has his Knights of the Round Table, the "twelve paladins" who accompanied him, and whose adventures, together with his own, form a whole cycle of folk-tales in German, French, Norse, English and Italian The two most famous of the paladins, Roland and Oliver, were honoured by a special cycle of legends. The chief of these, the *Chanson de Roland* (Song of Roland), tells how the two friends died in battle against the Saracens, facing overwhelming odds, in the pass of Roncesvalles, in Spain Part of this Song of Roland is said to have been sung by the French minstrel, Taillefer, before the battle of Hastings

MORE STORIES TO TELL

The following details of Charlemagne's private life as told by Einhard will be interesting to children.

His appearance—"Whether sitting or standing, he had the advantage of a very great presence and dignity. His neck was thick and too short, and his stomach too prominent: these defects, however, were lost in the fair balance of the rest of his limbs His step was firm, the whole carriage of his body masculine, but his voice, although it was clear, was not in true proportion to the size of his frame."

His dress.—"He wore the dress of his country, that is, the Frankish: on his body, a linen shirt and linen thigh coverings; then a tunic with a silken hem, and stockings. He wound garters round his legs, and clad his feet in shoes His chest and shoulders were protected from the cold by a doublet of otter and sable skins Wrapped in a sea-blue cloak, he always carried a sword at his girdle, this and the hilt being interlaced silver and gold Sometimes he wore a sword studded with gems, but only on high days and holidays, or on the visit of some foreign embassy. He held the foreign styles of dress in the greatest contempt, however fine they might be, nor would he ever submit to be robed in them Only once, in Rome, at the request of the pontiff Adrian, and again at the earnest request of his successor Leo (III), did he wrap himself in the long tunic and chlamys (cloak) and wear shoes of the Roman shape."

His amusements and personal habits—"He took much exercise on horseback and in the chase, which was a national characteristic in him, for there is scarcely a nation on earth which can equal the Franks in this art He had much pleasure in the vapour of natural warm springs, and practised his body in frequent swimming, of which he was such a master that no one could be truly said to excel him in this On account of the warm springs he even built a palace at Aachen, where in the last year of his life he dwelt continually till his death Not only did he invite his sons to the baths, but also his nobles and friends, sometimes even a crowd of his servants and bodyguard, so that there were times when a hundred and even more men were bathing together. . . .

"He ate and drank moderately, but he was especially moderate in drinking; for he had the greatest horror of drunkenness in any man, to say nothing of himself and his companions. He was less abstemious in eating, and would often growl that fasting was bad for his body He very seldom gave banquets, indeed, only on the chief festival days, but then they were attended in great numbers. His daily meal was furnished from four courses, in addition to the roast meat which the hunters were wont to bring in on spits, and of which he partook more freely than of any other dish While at his meals he would hear some sort of performance or reading. Histories and the valorous deeds of the men of old were read over to him. He was fond of the works of St. Augustine, especially of those entitled *The City of God.*"

His interest in learning.—"His fluency of speech was resourceful and abundant and he could express with great openness whatever he wanted to say. Nor did his own language alone satisfy him, but he . . . learned Latin . and understood Greek. He was so voluble in speaking that he almost produced the impression of being a chatterer. To learn grammar, he attended the lectures of the learned Peter of Pisa, a deacon, for the rest of the instructions Albinus was his tutor, otherwise called Alcuin, also a deacon, a Saxon by race, from Britain, and the most learned man of the day With him the king spent most of his time and study in rhetoric and dialectics, and particularly in astronomy . . . He tried to learn to write, and used to keep his tablets and copy book for this purpose

beneath his pillow in bed, so that when he had leisure he could train his hand in forming letters, but he made little progress"

His attitude to religion —"He devoted himself to the Christian religion, which had been instilled into him in his infancy, with the greatest holiness and piety, and on this account he built the basilica (church) of Aachen, a work of great beauty, which he embellished with silver and gold and with candlesticks and lattices and doors of solid brass. When he could not get columns or marble for this structure anywhere else, he caused them to be brought from Rome and from Ravenna As long as his health permitted, he was an untiring worshipper in church at matins and evensong and also during the hours of the night and at the time of the sacrifice, and he made it his great care that all the services of the church should be conducted with the greatest cleanliness. He industriously improved the order of reading and chanting, for he was a master in both."

Charlemagne in war.—(From the account by the Monk of St. Gall, a historian who wrote some sixty years afterwards) "There could be seen Charles, helmeted with an iron helmet, his hands clad in iron gauntlets, his iron breast and broad shoulders protected with an iron breastplate; an iron spear was raised on high in his left hand, his right always rested on his unconquered iron sword. His shield was all of iron; his charger was iron-coloured and iron-hearted . . . The fields and open places were filled with iron, the rays of the sun were thrown back by gleams of iron, a people harder than iron paid universal honour to the hardness of iron."

CHILDREN'S STORY

The Franks.—Among the new nations who settled in the west of Europe was a people called the Franks, whose name meant "the free men." They made their home in the land now known after them as France, and also in part of Germany. These Franks were related to the Goths, and resembled them in appearance, being tall, strong men with fair or red hair, which they wore cut short. The Frankish kings, however, as a sign of royalty, wore long hair reaching to their shoulders.

The men generally wore a cloak, often blue in colour, breeches with garters wound round the legs, and a linen tunic fastened with brooches and girt with a leather belt. From this belt, which was fastened by a handsome buckle ornamented with silver, hung the owner's weapon—his axe, knife or dagger—and also the articles which he needed for his toilet, such as scissors and a comb, for the Franks took great pains with their appearance All these things have been dug up out of the graves of Frankish warriors, who had been buried in their armour, with all their treasures round them, as was the barbarian custom.

At first the Franks were warlike heathens. There was a saying, "Have a Frank as a friend, but not as a neighbour." This meant that it was wise to have a Frank as your friend rather than as your enemy, but that even if he were your friend it was safest not to live too near him!

The first great king of the Franks was Clovis His wife and children were Christians, but Clovis himself was a heathen. The story goes that one day when the king was hard beset in battle, he cried out, "O Christ, Whom my wife and children worship, if You will help me to gain the victory, I will become a Christian." The Franks won the battle, and Clovis kept his promise. On Christmas Day in the year A.D. 496 he and many of his warriors were baptised.

"Bow down your head," said the bishop who baptised Clovis. "Adore what you have burned, and burn what you have adored." In time all the Franks became Christians, they burned the idols which they had formerly adored and knelt instead before the crucifix, in churches which they would once have burned.

Besides making them Christians, Clovis formed the Franks into a great nation. After he was dead, the kings who followed him grew gradually weaker, until they were known as the "do-nothing" kings. They still wore their hair long and rode in wagons drawn by white oxen, but they had little share in the ruling of the land. That was done by their wise counsellors, who were called "Mayors of the Palace"

One of these counsellors was Charles Martel or "Charles the Hammer" He was so called because in A D. 732 he led the Franks in the great battle of Tours against the Arabs and drove them out of the land, as we heard in the story of Mohammed. Men said that Charles Martel had *hammered* the Arabs out of Christendom But though Charles ruled like a king he never called himself by that title

The son of Charles Martel, however, whose name was Pepin, was not content to be an uncrowned king like his father. He wanted the crown as well as the power, but he did not dare to make himself king without asking advice first. The wisest man in the West was thought to be the Pope, who, as you will remember, was held in honour even by fierce barbarians like Attila. Men considered that whatever he said was right It was to the Pope therefore that Pepin sent messengers to ask, "Should not the man who rules the land wear the crown as well?"

The Pope replied, as Pepin had hoped, that the man who ruled as king should be called the king. Then Pepin, quite satisfied, cut off the long hair of the last feeble "do-nothing" king and sent him away to a monastery, while Pepin himself was crowned king of the Franks

Three years later, Pope Stephen II. came to Pepin's court, and there with great solemnity he re-crowned the king, blessed him by pouring holy oil on his head, and said that he was "king by the grace of God," that is, that God wished him to be king

In repayment Pepin and his men fought for the Roman Church against its enemies, a people called the Lombards who lived in northern Italy, and defeated them After this, whenever the Roman Church was in danger or trouble the Pope always turned to the Franks for help, and in this way a friendship grew up between the Popes and the Frankish kings.

Charlemagne, the greatest of all the Frankish kings, was Pepin's son. His name was Charles. He was brought up in the rough life of the Frankish court, where the king and the nobles spent the days fighting or hunting, and the nights in feasting Consequently, the young prince never learned to read or write In after years he regretted this and tried hard to learn; he even kept his copy book under his pillow at night so that he might begin to practise making letters the first thing in the morning. But it was of no use; he was too old to learn to write well.

However, he grew up brave and strong. He loved all outdoor sports, particularly riding and hunting He was passionately fond of swimming, and when he was older he had a great swimming bath built, which he and his friends would visit every day Sometimes there would be a hundred and fifty men in the bath at once, but Charles swam better than all the rest

When Charles was twenty-five years old, he became king of the Franks. He ruled over them for more than forty years, and during that time the Franks, under his wise government, became the most powerful and most prosperous people in Europe. So wisely and well did King Charles rule the people that he became known as Charlemagne, or Charles the Great.

Since Charles could not write, he had a secretary to write his letters for him. This man has left us a description of the king in his later years "His body was large and strong," says this writer, "his stature tall and commanding. (He was nearly seven feet in height.) His eyes were large and piercing and full of life His nose was somewhat larger than usual He had noble

white hair and his face was ruddy and cheerful."

On ordinary days he dressed much like the rest of the Franks, but "on festival days he would stalk about in a garment woven with gold, and shoes studded with precious stones A golden pin clasped his cloak, and he wore a splendid crown made of gold and jewels" The tall, white-haired king, in his gorgeous robes, must indeed have been a majestic figure.

He was very fond of eating, and while at his meals stories relating the gallant deeds of the men of old would be read over to him. Altogether, he was a fitting king to build up and to rule a great empire. How this happened we have now to see

Charlemagne in war.—His first duty was to make the Franks safe from the fierce tribes which lived all round them, and for his great task he needed the largest army that he could collect This is how the army was gathered Every year, in obedience to an old Frankish custom, all the able-bodied Franks met together, ready armed for battle, at a place known as the "March-field" The nobles came on horseback clad in armour and bearing good weapons, while the poorer folk came on foot, in leather jackets, with such arms as they could find, sometimes only the scythes and billhooks which they used for mowing their corn and cutting wood Each man brought enough food to last him for some time

When all were assembled, the king led them out to battle, and such was his skill and courage that they were nearly always victorious. He seemed to be everywhere at once and to know what was going on in every part of the battle-field

Charlemagne's chief enemies were the heathen Saxons, who lived on the north-east borders of his kingdom He made up his mind to defeat these Saxons and to force them to become Christians Among the baggage of the great army which the king led into Saxon territory were carried hundreds of white linen tunics When a Saxon tribe was conquered, and its chiefs came to do homage to Charlemagne, he persuaded them and their followers to be baptised in some nearby pond or stream, and then each of them was robed in one of the white tunics as a sign that he was a Christian Any warrior who refused baptism was put to death

As each district was conquered in this way, Charles built there a fortress in which he placed not only a garrison of soldiers to keep the conquered people from rebelling, but also a bishop to teach them the Christian religion The most noted Saxon leader was named Wittekind. Again and again he escaped from Charlemagne's soldiers, but at last, when the Saxon lands were all but ruined and thousands of people slain, he made peace with the king In the picture Wittekind is shown standing before King Charlemagne in his palace at Attigny (Class Picture No. 37.)

Charlemagne in peace.—Charlemagne conquered other lands besides those of the Saxons and in all of them he placed bishops to teach the people. He divided the land into counties, and in each county he placed counts who collected soldiers and attended to such matters as keeping the roads and bridges in good order and seeing that justice was done. The counts who lived on the borders or "marches" of the empire were specially chosen men, skilled in war and able to drive back any enemy who might try to break in.

So that he might know how his arrangements were working, the king sent out messengers, two by two. One of each pair was a clergyman and the other a layman They journeyed over the country and brought back to the king news of the state of affairs in distant parts of his kingdom This was a very good plan, and so long as Charlemagne was alive it worked well. The counts were obliged to rule justly, without robbing or ill-treating those they governed, for they knew that if they were cruel or unjust the messengers would carry the news to the stern king, and they would be punished.

Charles remembered how much he had lost through not learning to read and write, so he invited learned men to come to his court at Aachen to teach him and his nobles. A school was started for the sons of the nobles, and Charlemagne ordered that every monastery should have a school, too, where more people still might learn to read and write. Men were set to copy the old books so that there might be plenty to read Many of these books, which were written in the most beautiful handwriting, can still be seen in museums to-day

One of the most learned men who came to the court of Charlemagne was an Englishman His name was Alcuin, and his home was in York. From his childhood Alcuin loved the study of books, and when he grew up he became a famous scholar While travelling in Italy he met Charlemagne, and the two men became fast friends. Charlemagne invited Alcuin to come to his court, and to open a school there for the king's children and those of his nobles

Alcuin arrived, and the school was opened. Other teachers came as well and the whole palace became a school. Nor were the children the only pupils The king and his nobles were eager to learn, too, and would often join in the lessons, especially the Latin grammar lessons, for they wished to be able to read Latin, the language in which all books were written in the lands ruled by Charlemagne.

In the evenings, when lessons were over, the king would invite Alcuin and the other scholars to join him and his nobles in the great hall of his palace, and they would sit by the fire talking till late at night. Those were happy times. The scholars and nobles gave each other new names, and even Charlemagne pretended that he was king no longer and allowed himself to be called by the name of David.

Sometimes the talk was serious and took the form of discussions about religion, and education, and other important matters. But sometimes the party would become gay and would sit laughing and joking, merely telling stories and asking riddles Charlemagne was very clever at guessing riddles Alcuin was equally clever at making them up Sometimes Alcuin's riddles were so hard that only the king could guess them This was one of the riddles that Alcuin asked —

" A beast has sudden come to this my house,
A beast of wonders that two heads has got,
And yet the beast has only one jaw bone,
Thrice three times ten of horrid teeth it hath."

Can you guess what it was that Alcuin was describing? It was a *comb* which a friend had sent to him as a present. It had a lion's head at each end of the piece at the top, and ninety teeth.

Charlemagne was a deeply religious man. He gave away large sums of money to the churches and to the poor, and spent much of his time in the beautiful chapel which he had caused to be built beside his palace at Aachen Parts of this chapel still stand, for it has become a great cathedral in which you can still see the marble pillars and the great bronze doors and other ornaments which the Frankish king had brought from Italy and elsewhere to decorate his chapel

Charlemagne was anxious that all church services should be as beautiful as possible. He ordered that everything should be done in good order, and to make the services still more pleasing he sent to Rome for trained choirboys who filled the churches with their sweet singing. Because of his love for the Church of Rome the Frankish king was eager to help the Pope in any way he could. We shall see what a splendid reward he received for this help.

How Charlemagne became a Roman emperor.—For over three hundred years there had been no emperor at Rome It is true that there was a Roman emperor in the East, but he lived at Constantinople, too far away to rule the lands of the West, which were given up to the mercy of the Saxons, Goths and Arabs.

The unhappy people of the West longed for some strong man to arise who would become emperor and rule these wild tribes with a firm hand It seemed to them that Charlemagne, the powerful and Christian king of the Franks, was just such a man The Pope decided to make Charlemagne an emperor in return for all that he had done for the Church and for the barbarians whom he had converted to Christianity.

In the year A D 800 his chance came. Charlemagne came to Rome on a visit. He had come to help the Pope against his enemies, but when that help had been given the king stayed on in Rome till Christmas time On Christmas Day he and his nobles attended service in the great church of St Peter, which was filled by those who had come to celebrate Christmas and to see Charlemagne.

The monarch knelt down before the altar to pray As he rose to his feet the Pope suddenly placed on his head an emperor's crown. At once a great shout of joy went up from all the congregation: "Long life to Charles the August, the great and peace-loving emperor of the Romans"

Thus, after three hundred years, there was a Roman emperor in the West once more, and though he was no Roman by birth but a Frankish king, the news spread across Europe and Asia, and many rulers of other parts of the world sent to do homage to the new Roman emperor. You will remember that the caliph of Bagdad, Harun-al-Rashid, sent him rich gifts

The bishop of Jerusalem sent him a yet greater treasure—the key of the Holy Sepulchre in which Christ was said to have been buried In East and West alike, Charlemagne's new greatness was recognised.

For fourteen years after his coronation the emperor continued to rule At the end of that time, worn out by many wars and much hard work, he died and was buried at Aachen. The story is told that two hundred years later another emperor had his tomb opened, and a wonderful sight was seen. There sat the emperor Charlemagne, on a marble chair, dressed in his magnificent coronation robes of white satin, with a golden crown on his head and a golden sceptre in his hand, looking as he had looked when he had sat on his throne as the great and peace-loving emperor of the Romans.

TEACHING HINTS

1. Map.—Draw the map which shows the empire of Charlemagne at its greatest extent Show the original home of the Franks in the regions round the Rhine. Point out Tours, where Charles Martel defeated the Arabs; and Lombardy, the home of the Pope's enemies whom Pepin defeated Show how the Franks under Charlemagne spread over France, Germany, the Netherlands, and the north of Italy Show Aachen (Aix-la-Chapelle) where Charlemagne held his court and built his cathedral

2. Charlemagne's method of converting the Saxons.—This may puzzle the class. Explain that it was thought that a savage race like the Saxons would not understand gentle arguments and that the only way to induce them to become Christians, and so to save their souls, was by force. Men often think of their God as like themselves, and the fierce Frankish warriors imagined God to be a fierce warrior too.

3. Memory work.—(*a*) The Franks were a barbarian tribe living in parts of France and Germany. (*b*) Their first great king was Clovis, who became a Christian. (*c*) Charles Martel, "the Hammer," drove the Arabs out of Gaul (*d*) His son, Pepin, sent the "do-nothing" king to a monastery and was himself crowned. (*e*) Pepin's son, Charlemagne, conquered a great empire for the Franks. He ruled wisely and was crowned Roman Emperor by the Pope.

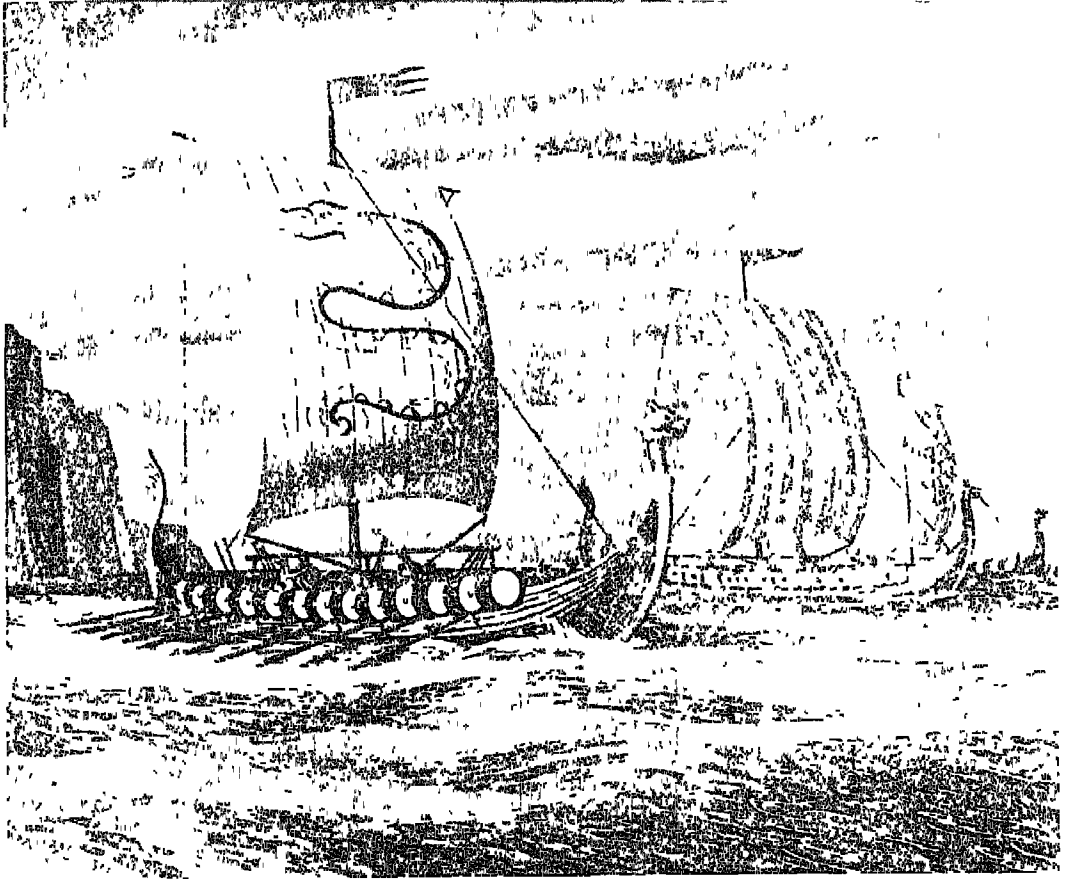
4. Exercises.—(*a*) Who were the Franks? (*b*) Where did they live? (*c*) How did they resemble the Goths? (*d*) Describe their dress. (*e*) How were the Frankish kings

distinguished from their subjects? (*f*) Why was it wise to have a Frank as a friend, but not as a neighbour? (*g*) Who was Clovis? (*h*) Tell the story of his conversion to Christianity. (*i*) What other benefit did Clovis give to the Franks, besides making them Christians? (*j*) Why were his successors called the "do-nothing" kings? (*k*) Who really ruled the land for the "do-nothing" kings? (*l*) How did Charles Martel earn his name of "the Hammer"? (*m*) Why did Pepin ask the Pope's advice? (*n*) What advice did the Pope give him? (*o*) What does "Charlemagne" mean? (*p*) How did Charlemagne gather his army? (*q*) How did Charlemagne convert the Saxons to Christianity? (*r*) How did Charlemagne arrange to receive news from different parts of his kingdom? (*s*) Who was Alcuin? (*t*) What did Alcuin do for the Franks? (*u*) Why were the peoples of Europe glad when Charlemagne was made "emperor of the Romans"?

[*From the painting by Blaas*

CHARLEMAGNE AND HIS SCHOLARS

XV. ALFRED THE GREAT

PICTURE REFERENCE

VIKING SHIPS

(Class Picture No 38 in the portfolio)

INTRODUCTION

The Northmen, Norsemen, or Vikings were yet another branch of the Indo-European men Their migration from their original home in central Europe to the northern peninsula of Scandinavia was the last wave of that great movement of the Indo-European peoples whose activities we have been following. The Class Picture gives a good impression of the famous ships in which the warriors made their invasions.

The Northmen lived, as their descendants still live, in Norway, Sweden and Denmark Most of Sweden is a level country watered by numerous rivers and dotted with lakes. Much of Norway is bleak and barren, and so covered with vast forests of fir, pine and beech, that only a small percentage of the soil can be used for farming The indented

coast line provides innumerable safe harbours for ships, and it is small wonder that the Northmen should leave their inhospitable lands and put out to sea in search of booty and adventure.

The ninth, tenth and eleventh centuries have been called the "Viking Age," since it was during that period that the Northmen, realising that the sea offered the best road to plunder and conquest, began their ocean voyages. At first these voyages were only summer raids, and the Vikings returned to winter in the creeks or fiords of Scandinavia. The name Vikings means "sea-warriors" As time went on, and their seamanship improved, they grew bolder and sailed farther afield, till eventually they were obliged to winter in the lands they visited, and this led the way to settlements in many parts

The principal cause of the Viking movement was the hunger for land, a cause that has led to colonial expansion in all ages In their shallow boats the Northmen sailed up the rivers of England, France and Germany They directed their early attacks against churches and monasteries which were full of treasure and less well protected than the towns Early in the ninth century they made settlements in Ireland, and the first Irish cities, among them Dublin and Limerick, were founded by the Northmen. About the same time they discovered the Faroe Islands, the Orkneys and Shetlands, and the Hebrides, and on these islands many immigrants made their homes In A D 874 they began the colonisation of Iceland, which became almost a second Norway in language and customs Towards the end of the tenth century, Eric the Red reached Greenland. He gave it this name not because it was green, but because, as he said, "there is nothing like a good name to attract settlers." About A D 1000 the Northmen made voyages south of Greenland to the American mainland, and probably reached the shores of Labrador and Nova Scotia No lasting settlements, however, were made here, and nothing more is heard of America until the days of Columbus and Cabot.

Towards the end of Charlemagne's reign the Northmen appeared on the French coast, and after his death they did enormous damage, sailing far up the Seine, Loire and Garonne. The monasteries, the chief centres of learning and culture of the time, suffered greatly. In Germany, too, the rivers offered a ready highway for their ships, and the raiders plundered the very heart of the country.

In A.D. 911 a king of France granted Rollo, a Viking chief, a territory about the lower Seine which developed into what became known as the duchy of Normandy, and its people were known as Normans. Rollo agreed to accept Christianity, and in a remarkably short time Normandy became a Christian land, famous for its churches, monasteries and schools.

In the East the Norwegians made the first voyages of exploration in the Arctic Seas. They rounded the North Cape and reached the White Sea The Swedes invaded Finland and ruled that land throughout the Middle Ages. They sailed far up the Russian rivers, and a leader, Ruric, built a fortress at Nijni Novgorod which became a centre of trade between Constantinople and the Baltic. Many colonies were founded in Russia, and eventually the Northmen reached Constantinople, where some of them took service with the Byzantine emperor, and became known as the Varangian guard. Vladimir, a descendant of Ruric, established the Christian religion in his dominion about Kiev, and by this means the Greek church became established in Russia. The Slavs greatly profited by the civilising influence of Christianity, and in the early part of the Middle Ages Russia took a leading place in Europe.

The period between A D 850-1000 is sometimes spoken of as the "Dark Ages," for the incursions of the Northmen, together with those of the Nomads from the East, seemed likely to overwhelm western civilisation

The exploits of the Northmen were celebrated in the prose "sagas" and in the poems known as the "eddas." Many of the sagas

Noah's Ark, Represented as a Danish Ship

MS Bodl Junius 11, *c* A D 1000.

Soldier—Ninth Century

Gospel Book of MacDurnan, Lambeth Palace Library

were based on the early songs which minstrels sang at the banqueting boards of the Viking chiefs. They were written down chiefly in Iceland during the twelfth and thirteenth centuries, and they are of considerable value, both as historical records, and as affording a good insight into the character of the Vikings Here we read of their love of adventure and fighting. The hurricane was their servant, and the sea held for them no terrors. Their cruelty made them greatly feared by their enemies; they delighted in gay clothes and barbaric adornments; they revelled in drinking at the banqueting boards of their chiefs. Their chief god was Odin (known to the Anglo-Saxons as *Woden*) a god of battle and a lover of wisdom He is represented as an old, grey-bearded man with one eye, and appears chiefly as the giver of victory and as the god of the dead. He receives the souls of the slain, who in his palace, Valhalla, live a life of fighting and feasting, similar to that which has been their desire on earth Human sacrifices are frequently offered to Odin, especially prisoners of war. The warriors who are slain in battle, or drowned at sea, are borne to Valhalla by divine maidens called Valkyries The warriors are mounted on swift steeds and are taken first to Hela, where the gods give judgment and reject the unworthy. Then those selected are taken to Odin's palace to enjoy eternal triumph and happiness. It is little wonder that with such a religious faith the Vikings were fearless and terrible foes.

Thor, the eldest son of Odin, was the god of thunder and lightning He is represented as a middle-aged man of enormous strength which was doubled when he girded himself

with his magic belt. With his thunderbolt (imagined as a hammer) he struck down the harmful giants that assailed gods and men. Whenever he threw his thunderbolt it returned again to his hand. (Stories of Thor and of Balder the Beautiful, the best beloved of the Scandinavian divinities, are included in Vol. VI. for reading to the children.)

The Danes in England.—As early as A D. 787, Northmen from Denmark, a people known as Danes, began to invade England. They met with little resistance, partly because the Anglo-Saxons during their long sojourn in the island had lost the art of seamanship, partly because there was no unity among the tribes It was the genius of Egbert, king of the West Saxons, which succeeded in uniting all the kingdoms of southern England under his rule, and it was his grandson Alfred who used this new unity to save England.

When Alfred came to the throne of Wessex in A D. 871 at the age of twenty-three, he was faced with a difficult situation. Since the death of his grandfather in 851, the Danes had begun to winter in England, and along the east coast to make settlements which can still be recognised by their names ending in *by*, or *wick* (e g Derby, Whitby, Norwich, Berwick). By the time of Alfred's accession Wessex alone remained independent of the Danish conquerors. The problem before Alfred was to preserve that independence.

Young as he was, he soon showed that he was a worthy descendant of Egbert He not only saved Wessex from Danish conquest, but made it possible for his successors eventually to win back from the Danes all the lands they had taken. His achievement however, was the result of a long and desperate struggle At first Alfred and his troops were hard pressed, and he was forced to retreat to the island of Athelney, in Somerset. But the English army soon rallied to their courageous leader and defeated the Danes decisively at Ethandune. The conquered Danes agreed to make terms and to accept the religion of their conquerors.

By the treaty of Wedmore, 878, England was divided between the English and the Danes The latter retained the land which they had conquered and it came to be known as the *Danelaw*, since there, Danish and not English law prevailed. By this treaty Alfred gained peace for England, and the two nations settled down side by side and gradually intermingled

Alfred's work for England.—Alfred found himself faced with an almost ruined country. His first task was to secure it from future attacks, and this was done by the establishment of fortified towns, or *burghs*, by the organisation of the army, or *fyrd*, into an efficient fighting force, and by the development of a navy with ships built according to Alfred's own design.

The king next turned his attention to learning, which had completely fallen into decay. The Danes had destroyed most of the earlier civilisation, and their heathen fury had been concentrated on the monasteries, which were the chief repositories of this civilisation. The monks were scattered, and there was hardly a man throughout the land who could read a page of Latin

Alfred summoned to his court at Winchester scholars from England and the continent till the city became the English centre of art and literature. He rebuilt monasteries and churches, and established schools where the revived learning might be passed on to the next generation. It was the dearest wish of the king's heart that the common people should be able to read and write their own language, and that the best literature should be accessible to them in

[*Photochrom Copyright.*

KING ALFRED STATUE, WINCHESTER

their native language. To this end, he had himself learnt Latin, and he produced or caused to be produced translations of those books which he thought would be most valuable to his people. Before each translation he inserted a short and simple preface of his own, and these prefaces give us a vivid and charming picture of the mind of this wise and lovable man.

Alfred is the only English ruler who bears the title of "Great." No man ever deserved it more. Like Charlemagne, he was great both as a general and as an administrator, but his chief claim to greatness is that he wore himself out in the service of his people His aim in life was thus summed up in his own words: "My will was to live worthily as long as I lived, and after my life to leave to them that should come after, my memory in good works" His wish was fulfilled. A thousand years later the memory of Alfred the Great is still treasured

England, showing the Danelaw

CHILDREN'S STORY

The Northmen.—A story is told that once, when Charlemagne was an old man, he looked from the windows of his palace by the sea and saw many great ships sailing by They were long black vessels each with a prow curving upwards into a dragon's head and a great black sail bearing the figure of a raven.

"Whose are those fearsome dragon ships?" asked the emperor "Alas, sire," was the reply, "they are ships of the Northmen, the fierce pirates who land in peaceful countries to kill and destroy. Already they have done much harm in your own lands"

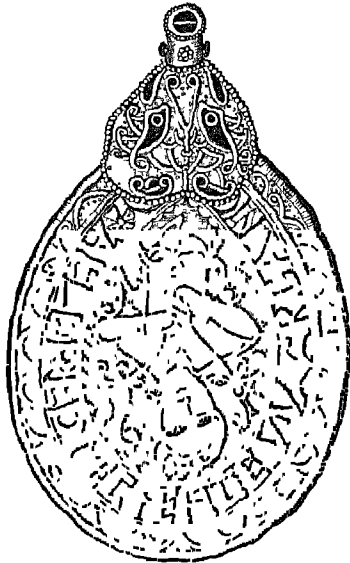
We are told that when Charlemagne heard this, he wept bitterly. "For myself I do

not fear," he said sadly, "but woe to those who come after me"

And woe indeed it was for the Franks when the Northmen entered their country. They were of the same race as the Franks and the Saxons. They, too, were tall and strong and fair-haired. But while the Franks and Saxons had become Christians, the Northmen were still heathens who worshipped Odin, the god of war, and Thor, the god of thunder and lightning. Their home, as their name tells us, was away to the north in Norway, Sweden and Denmark The coasts of Norway and Sweden are steep and rocky, and broken up into thousands of deep inlets called fiords. Much of the country is mountainous and barren, or covered with forests. The Northmen lived by farming, fishing, hunting and trading. As they grew in numbers there was not enough grain land for all the people, so many of the young men became sea rovers, who every spring would go down to their ships, which had been safely hidden during the winter in one of the many bays or creeks, and sail away to find adventure and to bring home treasure. Men called them the Vikings, or "sea-warriors," and terrible warriors they were All nations of Europe dreaded their coming. They loved battle even more than plunder, for they believed that if they were killed in battle they would live for ever with their god Odin, fighting by day and feasting by night Towards the end of the eighth century these Vikings swarmed over the sea to the coasts of western Europe seeking for plunder Some sailed up the rivers of France and Germany, killing, burning and plundering as they went Some went to Russia, where they afterwards settled down and ruled much of the land. Others, still bolder, sailed across the northern seas and made homes in Iceland and Greenland. In the year A D 1000 one party sailing southwards from Greenland discovered the shores of Labrador, on the mainland of America.

The Danes come to England.—The first notice of their coming to England is in the year A.D 787, when we are told that three ships of the Northmen came to Wessex from "the land of robbers" From that time, year after year, for more than a hundred years, the shores of England were hardly ever free from the raids of the Northmen They came in open boats rowed by warriors, and having a single sail of striped cloth. The ships carried about sixty men. Round the sides hung a line of round shields, yellow and black, while at the prow would be the figure of a dragon, or a snake. The warriors wore shirts of mail and metal helmets with wings, or horns on the sides, and they were armed with swords, spears and terrible two-handed axes The English had almost lost the use of ships since they had settled in England, and they were unable to drive the enemy away At first the Vikings attacked places on the coast where plunder was to be found, as in the monasteries of Holy Island and Whitby As they became bolder, they did as the Angles and Saxons had done three centuries before, they sailed up the rivers, left their ships behind them, and then seized horses and rode inland They did not fight on horseback, but by means of horses they were able to move rapidly about the country, and by the time the king's officer had collected a force to meet them, they were often miles away. The sight of these pirate ships struck terror into the hearts of the people. The English were suffering in the way that their ancestors had made the Britons suffer three hundred years before. The following lines are supposed to be said by a Saxon when describing a raid·

"Thorkhill and Thurstan from Jutland came,
To torture us Saxons with sword and flame,
To strip our homesteads and thorps and crofts,
To burn our barns and hovels and lofts,
To fell our kine and slay our deer,
To strip the orchard and drag the mere,
To butcher our sheep and reap our corn,
To fire our coverts of fern and thorn,
Driving the wolves and bears in bands
To raven and prey on our Saxon lands."

The Danes settle in England.—In the year A.D. 851 the Danes began to settle in England. Along the east coast from the Thames to the Tyne the Danes made settlements. There are more than six hundred names of places in England ending in *by* or *wick*, like Whitby, Derby, Norwich and Berwick, which remind us that they were once Danish towns. After conquering most of the north and middle of the kingdom, they crossed the Thames and attacked Wessex.

ALFRED'S JEWEL FOUND AT ATHELNEY

Now in Ashmolean Museum, Oxford

This jewel found in the 17th century may have belonged to Alfred, but this is not certain. It is of blue enamel enclosed in a setting of gold. The inscription in Old English reads "Alfred had me made"

But here their work was not so easy, for the west Saxon king, Ethelred, and his brother, Alfred, strove hard against the invaders. In one year, A D 871, they fought nine pitched battles against the Danes, and in one of them, the battle of Ashdown, the English won a great victory Ethelred died during the course of the struggle, and Alfred became king of Wessex

For nearly seven years there was peace, and the Danes settled down quietly growing grain and keeping cattle in the lands they had conquered. But in A.D 878 some Danes, who were too fond of fighting to be content as farmers, suddenly swooped down on Wessex Alfred was taken by surprise and was forced to take refuge in the Isle of Athelney, in Somerset There he waited quietly, gathering his army, till in a few weeks he was ready again for battle. He led his men out and totally defeated the Danes under Guthrum, at Ethandune (A white horse, cut in the turf in prehistoric times, is near the battlefield It can be seen from the train window on the railway line between London and Exeter)

After this battle both English and Danes were weary of fighting, and decided to make peace They made an agreement, called the treaty of Wedmore, by which it was arranged that the English should live in the south and south-west of England, and the Danes in the north and east The part of the country under Danish law came to be called the *Danelaw*.

Guthrum agreed to become a Christian and was baptised, Alfred acting as his godfather. Thirty of Guthrum's men became Christians, too, and in time the Danes gave up their heathen ways and lived at peace with the English

Alfred the Great.—Now that Wessex was saved from the fear of the Danes, Alfred's first task was to keep it safe He had many towns made into forts, or burghs, which were surrounded by a deep ditch and a wooden fence, and filled with men who were always ready for battle. The Danes soon found that it did not pay to attack lands that were so well defended

Alfred next turned his attention to the army. As among the Franks, there were no regular soldiers in those days, but every man was called upon to fight as need arose. The king had his bodyguard of nobles, or thanes, who travelled on horses, wore helmets and shirts of mail, and had good swords as well as axes and spears The ordinary soldiers were the peasants, who were always

anxious to get back to their homes to look after the crops, for if their wheat, rye and barley were not gathered there would be no food for the winter; but, on the other hand, if the peasants went home there was no one to defend the land. Alfred's plan was to divide his men into two bodies, each half in turn to remain at home and cultivate the land, while the other half was ready for war.

Alfred knew that the best way to defeat the Danes, if any more of them should try to invade England, was to prevent them from landing He had ships built, larger and better ships than those of the Danes, so that his men did not fear to attack the enemy. Alfred was the first king to defeat the Danes at sea.

In addition to all these warlike matters, the king thought about helping his people in their homes. During the anxious time of war little care had been given to learning Most of the monasteries, which you remember were the schools and libraries of the time, had been destroyed, and only a few priests were left who could read and write Alfred called for learned men both from England and abroad to teach his people. For the sons of the nobles he set up a court school where they might learn to read and write both in Latin, which was the language used by learned men all over the world, and in their own English tongue. In this way Alfred trained the young nobles to be ready to help in ruling the country.

Alfred specially wanted people who knew no Latin to read books in English, so he himself, with the help of scholars, re-wrote in English many Latin books. Then, he wanted his people to remember the great deeds of the men who had lived before them, so he bade his learned men gather up all that was known of the history of the land and write it in a book. This book was the beginning of the famous *Anglo-Saxon Chronicle*, as it is called There are several copies of the *Chronicle*, written by monks in different monasteries, and it is from these chronicles that we learn the story of the Saxons and the Danes

Alfred and his council of wise men, that is the witan, revised the laws, and the king saw that they were kept, punishing evil-doers, especially robbers, very severely. He ordered his judges to judge with equal justice both the rich and the poor.

In his way of life Alfred was godly and upright. In one of his books he wrote, "My will was to live worthily as long as I lived, and after my life to leave to them that should come after, my memory in good works" Although his health was not good, he did not spare himself, but worked hard, so arranging his time that every hour of the day had its appointed task There were no clocks in those days, and an old writer says that Alfred was able to divide the day and night into hours by means of candles, which were so made that they would burn from one mark to the next every hour. To protect his candles from the draughts and make them burn equally he had lanterns made, with the sides of white horn through which the light shone brightly. The king was fond of hunting, hawking and singing to the harp, but he took little time for these amusements.

Alfred is the only English king who is called *Great*, and he is called so, not because of the many battles he won, but because, like Charlemagne, he loved and cared for the people he ruled and gave up his life to their service He died in A D 900 and was buried in the minster that he had founded at Winchester, the royal city of Wessex.

MORE STORIES TO TELL

Beowulf, a story of the Northmen.—Long ago, in the far cold northlands there lived a tribe called the Geats, and among them was a boy called Beowulf He was a very quiet lad, and the king Hygelac and his warriors would say, laughing, "Beowulf will never grow into a warrior. He is too lazy and stupid"

One day a messenger came to the court, from a king of the Danes, who lived across the sea. Very sad was the tale he had to tell. "O king," he said, "my master has built

a great hall for his warriors which he calls the Hart's Hall Most glorious of halls is it, a wonder to all people. On the steep wooden roof are the gilded antlers of harts, and gilded iron adorns its walls. Many a time have the Danish warriors made merry within it, and after the meal have laid them down to sleep.

But now the hall stands silent and deserted, and no man dare venture there; for near it lies a loathly fen, and in that fen there lurks the bog demon, Grendel, with hatred in his heart. He heard the sound of feasting, and left his lair; and while the heroes slept, he crept among them, and thirty of the bravest he slew. Night after night he came, and though many warriors met him in fight, none could stand against him. Will you send succour and take this reproach from our land?"

Then Beowulf knew that the time had come to clear his name from the taint of cowardice. With a chosen band, he entered his ship, and set off across the water for the Danish kingdom. Gladly did the king receive him, and once more the great hall was filled with feasters.

Then the warriors lay down to rest, still in their armour. Only Beowulf was unarmed, for he said, "The monster wears no coat of mail; I will fight him with my bare hands."

When all were asleep, into the hall crept a ghastly shadow, and laid on Beowulf its scaly hand. Instantly the hand was caught in a grip of iron, and though the monster threshed madly through the hall, overturning benches and tables, and rousing the terrified warriors, he could not break away from that vicelike grasp.

At last, with a frightful yell, he tore himself away and fled. When the heroes crowded round Beowulf, they found him holding a huge hairy hand and arm, which his great strength had torn from the monster's shoulder Loud were the cries of joy. "With such a wound," they said, "the monster cannot live long." All that day they feasted, and at nightfall lay down to sleep without fear of evil

But evil came once more stalking over the land that night. Grendel's frightful mother, mad with rage, came seeking revenge, and carried off two brave warriors to her lair beneath the fen

Next morning, when the dark deed was known, there was sorrow once more in the land. But when Beowulf heard it, he put on his ringed coat of mail, and his horned helmet with the boar crest, and girding on his sword set out for the fen. It was a horrible place, where dark shapes like snakes and dragons moved in the oily waters

All who were there held their breath as Beowulf dived beneath the waves. They closed over him, and all men feared that he was lost Presently the water began to froth and boil, and dark bloodstains came floating up from below. Then a cry arose, as the hero's head was seen above the waves. In one hand he bore the hideous heads of the monster and his mother, while the other grasped what had once been a sword, but was now only a hilt, for the blade had melted in the hot poisonous blood of the monster.

For many days the king entertained the deliverer and his companions; and then, when they wished to depart, loaded them with gifts, and spoke so lovingly to them that tears filled their eyes.

So they returned home victorious, and king Hygelac came down to the shore to meet Beowulf, no longer the lazy and stupid lad who would never be a warrior, but the mighty hero, who had won great honour for himself and for his country.

In time the tribe chose Beowulf as their king, and for many years he ruled them well and wisely. Then, when he was a very old man, a fierce fire dragon began to lay waste the land, burning the houses and even the palace with his fiery breath Old as he was, the king went out to meet the dragon and slew it, and captured for his people the rich treasure it guarded. But this last battle cost him his life, for he was mortally injured by the teeth and fire jets of the enemy, and

he was buried on the seashore of the land he loved.

TEACHING HINTS

1. Place names.—Point out on a map of England the names of Danish origin—Whitby, Norwich, etc. It is interesting to observe that the Norse word for *fort* is preserved in the *gorod* of Nijni Novgorod. Bury St Edmunds owes its name to the martyrdom of the Christian Edmund, under-king of East Anglia, who was fastened to a tree and shot to death with arrows by the Danes. We are not told that either Danes or Saxons used bows and arrows in battle, although these weapons were used in sport for killing birds, deer, hares and other game Perhaps it was only in terrible sport that the Danes killed Edmund with arrows

2. Treaty of Wedmore.—After the defeat of the Danes under Guthrum at Ethandune, a treaty was made at Chippenham Guthrum and a few of his followers afterwards visited Alfred at Wedmore, from which is taken the name of the treaty, so that it is usually called the treaty of Wedmore

3. Alfred's death.—The date of Alfred's death is usually given as A.D 901, but recent researches indicate that it occurred in A D. 900.

4. Danes and Phoenicians.—It will be helpful to the children to remind them of the first great seamen, the Phoenicians, who traded in the Mediterranean Compare their exploits with those of the Danes

5. Use of Latin in Alfred's time.—Explain to the class why Latin was the language of scholars throughout the Middle Ages Owing to the disturbed state of the times, few had leisure to write books, consequently the books that existed were mainly Latin translations of those which had survived from Greek and Roman times. To read them, all scholars, whatever their native language, were obliged to learn Latin, and they were then able to converse with one another in that language. The ordinary people were entirely cut off from books, and it was to remedy this evil that Alfred planned his translations, so that the poorer folk might have access to the wisdom of the past in a form which they could understand without a long and expensive education. From this small germ has developed our popular literature.

6. Beowulf.—This is an Anglo-Saxon epic poem, the oldest long poem in any Teutonic language. Some scholars claim a Scandinavian or Teutonic source for it, while others regard it wholly as a product of Anglo-Saxon Britain and, maybe, the work of one author. Historical characters are mentioned in the poem but the story tells mainly of the three great adventures of Beowulf told briefly in *More Stories to Tell.*

7. Alfred's statue.—A lofty bronze statue by H Thornycroft was set up in Winchester in 1901 on the thousandth anniversary of his death. The inscription on it reads·

> "Alfred found learning dead,
> And he restored it,
> Education neglected,
> And he revived it,
> The laws powerless,
> And he gave them force,
> The Church debased,
> And he raised it;
> The land ravaged by a fearful enemy,
> From which he delivered it."

8. Head of Thunder.—The blackboard sketch on page 183 is of a pendant of silver, in the shape of a hammer, the upper part wrought into the semblance of a head somewhat like that of a bird. This head, and the hammer, were both recognised emblems of Thor (Thunder), and the numerous ornaments of this character which occur in finds of the Middle and Later Iron Age (A.D 450-1000) were probably worn by his worshippers somewhat as a crucifix might be worn in later

days. The pendant was found in 1875 at Erikstorp, East Gotland.

9. Memory work.—(*a*) The Northmen, or Vikings, were pirates from the northern lands of Norway, Sweden and Denmark. (*b*) In their flat-bottomed vessels they sailed up the rivers and burned and plundered the towns of Europe. (*c*) Alfred the Great won many battles against the Danes and saved Wessex. (*d*) He built forts to protect the towns, and ships to keep away plundering Danes. (*e*) He invited learned men to teach at his court, he re-wrote Latin books in English, he made men keep the laws, he gave his country peace.

10. Exercises.—(*a*) By what other names are the Northmen known? (*b*) Where were the homes of the Northmen? (*c*) Why did they become sea rovers? (*d*) How did the Danes attack England? (*e*) Why could not the English drive them away? (*f*) How did King Alfred keep the Danes out of Wessex? (*g*) Why did the king learn the Latin language? (*h*) What was the *Danelaw*? (*i*) What was the *Anglo-Saxon Chronicle*? (*j*) Write sentences to explain that —(1) The Vikings were bold seamen. (2) They were terrible foes (3) Alfred was a clever general. (4) Alfred was a *great* king.

11. Blackboard summary.—

Alfred was king of the English.
Like Charlemagne, he was great both as a soldier and a ruler.
First he conquered the Danes and persuaded them to become Christians.
Reading and writing were hardly known in England
Eager that his people should learn to read, he translated books for them into English.
During his later years his people were both safe and well-taught.

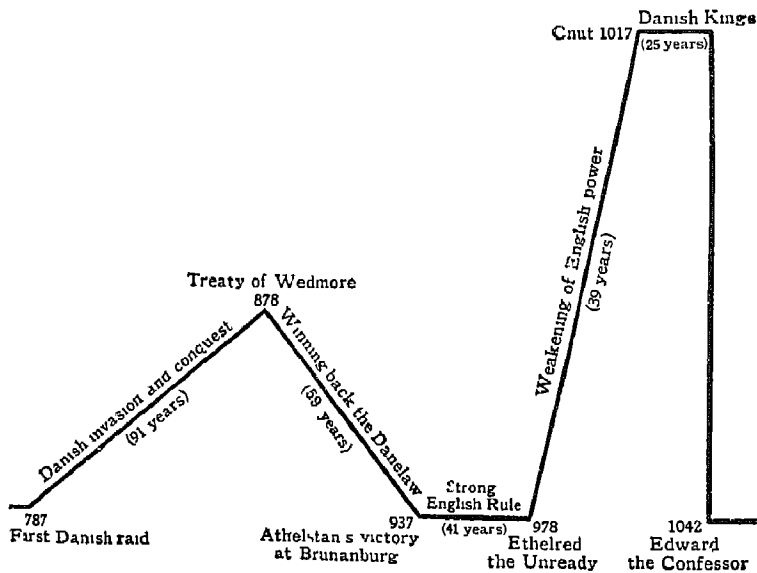
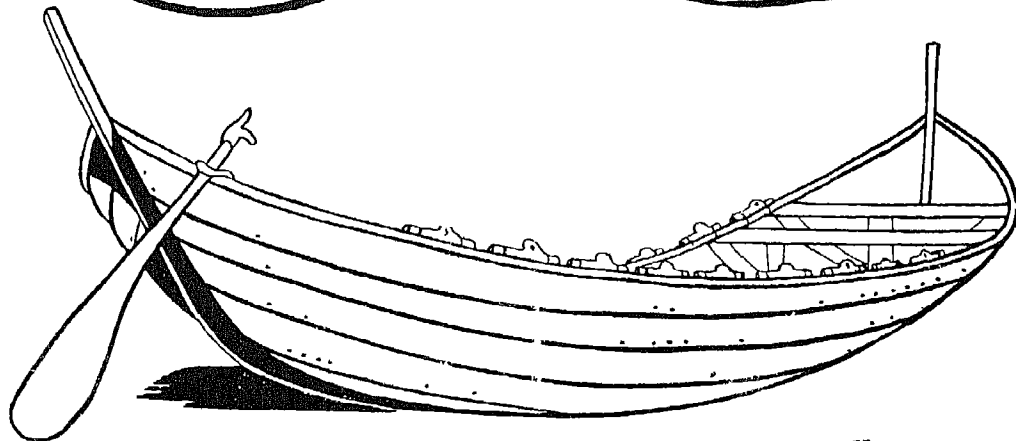
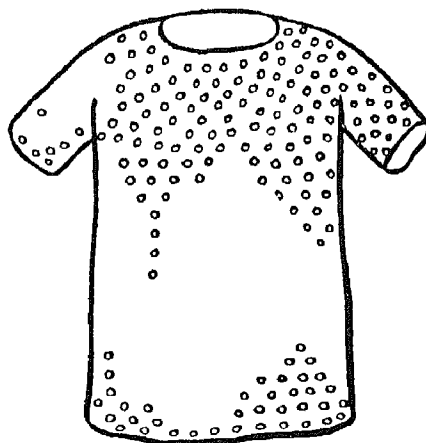
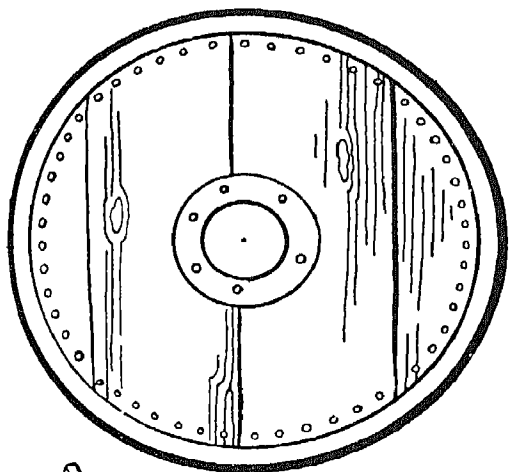
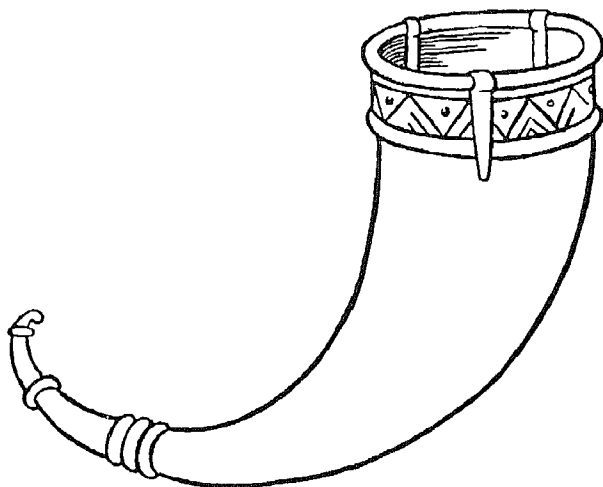
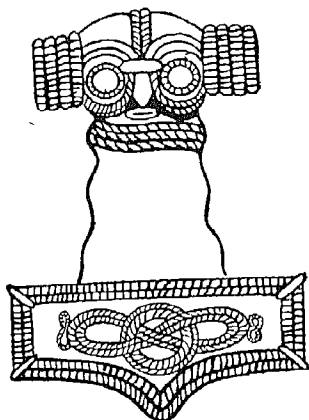



DIAGRAM ILLUSTRATING THE FLUCTUATING POWER OF THE DANES IN ENGLAND

Notice how the power of the Danes increased up to the *Treaty of Wedmore*, then it declined, and finally the English completed the conquest of the Danelaw, next, for forty one years, English rule was strong· afterwards the Danish power again increased till Cnut became king of England, and finally after twenty-five years of Danish rule, an English king, Edward the Confessor, came to the throne

SKETCHES FOR THE BLACKBOARD

HEAD OF THUNDER
DANISH SHIELD

DRINKING HORN
DANISH MAILCOAT

DANISH SHIP FOUND AT JUTLAND

XVI. THE DANISH CONQUEST OF ENGLAND

PICTURE REFERENCE

THERE is no special Class Picture associated with this chapter, but it would be a good plan for the children to see again No 35, *Some People of Anglo-Saxon England*, and No. 37, *Wittekind Submits to King Charlemagne* The conversation in the Reference Book associated with No. 35 might be revised.

INTRODUCTION

The Children's Story in this lesson deals only with the habits and customs of the Early English For those teachers who may like to tell the children something of the Danish Conquest of England and of the rule of Canute, the following notes will be helpful.

Reconquest of the Danelaw.—The work of winning back the Danelaw had already begun in Alfred's time The English living in the Danelaw had lost their own kings, and now they were quite ready to fight *for* a king of Wessex, and not *against* him, as they had done so often before Alfred's son, *Edward the Elder*, set to work to win back all the Danelaw. He was helped by his brother-in-law, Ethelred, the ealdorman of west Mercia, and when Ethelred died, Ethelfleda, his widow, who was Edward's sister, helped the king Ethelfleda, like Boadicea, was one of the few warrior-women of the world She was known as the "Lady of the Mercians," and took over the work of her late husband

Step by step the brother and sister won back nearly all the Danelaw When they had beaten the Danes in battle, they built burghs, or forts, much as the Romans had done long years before when they were conquering the Celts. Some burghs, like Chester, they built on the ruins of old Roman camps, in other places, like Stafford, they built a fort to guard the town Before Edward died, A D 925, all south and central England was united under him

The conquest of the Danelaw was completed by Edward's son *Athelstan*. This king had been the favourite of his grandfather Alfred, and was brought up in the household of the "Lady of the Mercians." He gained Danish Northumbria on the death of the Danish king With the help of his brother Edmund, he completed the conquest of the Danelaw, and defeated the Scots and Danes in a last great battle at Brunanburgh, 937.

Athelstan was highly esteemed by rulers in Europe, and four of his sisters married kings in Europe. The Danes were not driven out of England, they continued to live with the English, and as their language was not very different, and their manner of living was much the same, they soon settled down in the land and began to think of themselves as English, and no longer as foreigners.

Edgar the Peaceful, who reigned from 959 to 975, was fortunate in having the help of a great churchman called Dunstan, who became archbishop of Canterbury

Dunstan was Edmund's chief minister and most trusted adviser. He was a great builder of churches, and he urged his priests to compel the people to live good lives. This was not an easy task, for the Saxons, who had been fighting for so many years, did not take kindly to Christ's teaching of meekness

and peacefulness, nor did they readily give up their habits of eating and drinking too much.

The king and his minister thought it best to let the old kingdoms of Northumbria, Mercia, etc, be ruled in the king's name by ealdormen. Each ealdormanry or earldom kept its own laws, so that, although ruled by one king, England was not yet really a united country, for the ealdormen had their own ideas of how things should be done, and they did not always work together to help the king. Edgar's rule extended from the Forth to the Channel. He took for himself the titles of "King of the Anglo-Saxons," and "Caesar of the whole of Britain." It is important to notice that Edgar treated both Danes and English alike, a plan which helped all to live peaceably together. A story is told that Edgar was once rowed in a boat on the river Dee by eight kings, three kings from Scotland and

ST. DUNSTAN WRITING IN THE SCRIPTORIUM OF A MONASTERY

five from Wales. This story, though probably untrue, shows what a great king Edgar was thought to be He was called the *Peaceful,* because during his reign there were no big battles with the Danes or with the Scots.

Danegeld.—Three years after Edgar's death his son Edward was murdered, and a younger son, Ethelred II. (979 to 1016), came to the throne This king came to be known as Ethelred the Redeless, or Ethelred the Unready, that is,—*the man without wisdom* His reign was full of quarrels with his ealdormen, for he seemed never to do quite the right thing He was only ten years of age when he came to the throne, so at first Dunstan had the larger share in ruling the land. But Dunstan died in 988, and Ethelred had no other such wise man to help him.

At this time the Danes and Northmen were hard pressed by war and famine in their own land, and new bands, led by Olaf of Norway and Sweyn of Denmark, invaded England They killed, plundered and burned as the Vikings had done in earlier days. Instead of fighting against them, Ethelred tried to buy them off, and to get money he forced his people to pay a tax called Danegeld. Of course, the Danes came again for more money, and at last, in despair, Ethelred made up his mind to murder all the Danes he could lay hands on in Wessex. Urged by secret orders from the king, the West Saxons rose on St Brice's day, 1002, and murdered the Danes,—men, women and children,—scattered among them. Sweyn, whose sister had been killed, came with a great army and ravaged the land.

The English suffered so much that at last they felt it was better to obey the foreign king than to be so miserable, and in 1014 they recognised Sweyn as their king Ethelred fled across the sea to Normandy where he had friends, for at his second marriage he had married a Norman lady named Emma. Sweyn died suddenly as he was riding at the head of his men to attack the monastery of Bury St. Edmunds. The Danish warriors chose Sweyn's son Cnut as king, but the witan sent for Ethelred to return. Ethelred was unable to conquer Cnut, and at his death in 1016 his noble son, Edmund Ironside, continued the struggle But the ealdormen did not all help the king, and though Edmund fought bravely in many battles, he was finally defeated. Edmund and Cnut agreed to divide the kingdom, as Alfred and Guthrum had done, but before the end of the year Edmund died, and Cnut the Dane became king of England, 1017.

January. Ploughing

February. Pruning Trees

March Breaking up Soil—Digging—Sowing—Harrowing

April. Feasting

Eleventh-Century Calendar

MS. Cott. Jul A vi

May Watching Sheep

June Cutting Wood

July. Haymaking

August Harvesting

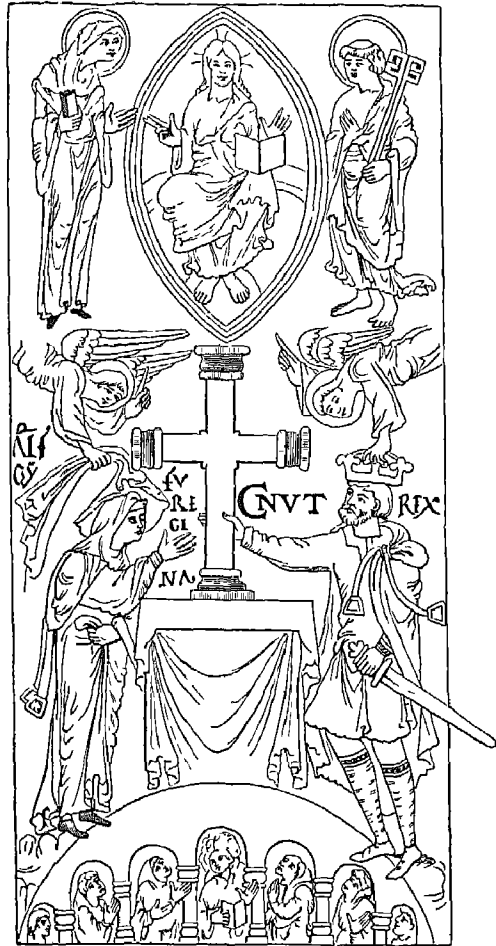
ELEVENTH-CENTURY CALENDAR

MS Cott Jul A vi.

The Danish kings.—For twenty-five years, from 1017 to 1042, England was ruled by Danish kings. Cnut was the best of them, for he ruled England fairly, and made friends with the English people He sent home most of his warriors, keeping about him only a large band of his *huscarls* or bodyguard. By this plan Cnut was able to stop any sudden rising that took place, so that he was really master of his kingdom. Under the king were the ealdormen, who from this time were called *earls*, and of these the three chief were those who governed Mercia, Northumbria and Wessex (Kent and Sussex

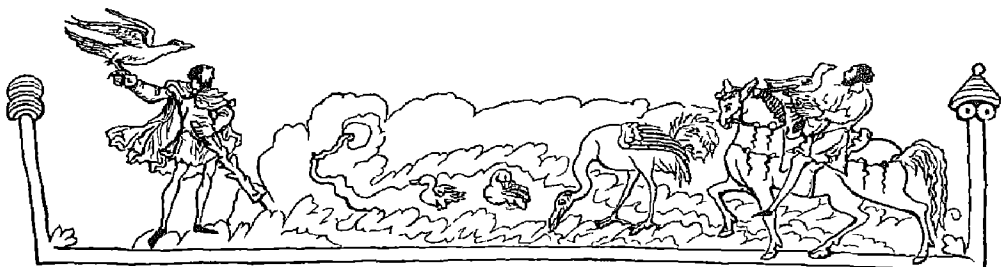
THE EMPIRE OF THE DANISH KINGS FROM 1013 TO 1042

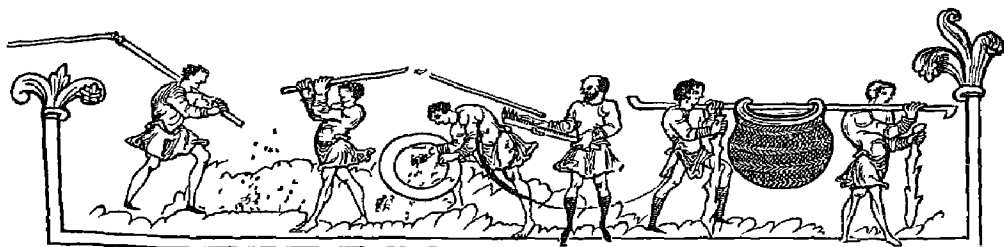
were now part of Wessex) Cnut showed his trust in the English by making an Englishman, Godwin, earl of Wessex. On his brother's death Cnut became king of Denmark, and as he won Norway, he was king of England, Denmark and Norway. Like Ethelred, he was friendly with the Normans, for he married Emma, the widow of Ethelred.

Cnut ruled like Edgar the Peaceful, keeping the old laws, and treating the English and Danes alike He kept order in the land, he encouraged trade and the building of towns, and he helped the monks by giving costly gifts to the religious houses. He had great love for the monks. On one occasion, as he was being rowed in a boat across the fen water that surrounded the abbey of Ely, he heard the monks inside chanting, and the sweet music so pleased the king that he composed a song about the

CNUT AND EMMA MAKING A DONATION TO NEW MINSTER

Stowe MS. Ecclesiastica iii 32.

incident: "Merrily sang the monks in Ely when Cnut the king rowed by." Being humble-minded he went on a pilgrimage to Rome. The grandeur of his character is shown in a letter which he sent to his people from Rome: "I have vowed to God to lead

September. Hunting—Pasturing Swine

October Hawking

November Group Round a Fire

December Threshing and Winnowing

ELEVENTH-CENTURY CALENDAR

MS Cott Jul A. vi

a right life in all things," wrote the king and he concluded his letter with the words: "Never have I spared, or will I spare to spend myself and my toil in what is needful and good for my people." Cnut's greatest gift to his people was that of peace. We can truly say that Cnut was a *great* king.

His son Harold reigned for five years, and another son, Hardicanute, for two years These men had the fierceness of the Vikings without the good qualities of Cnut Their reigns were marked by many cruel and horrid deeds. They died without children, and the people gladly turned again to an Englishman to rule over them. They invited Edward, known as the Confessor, the son of Ethelred and Emma, to come over from Normandy

Important changes.—One of the great changes that had slowly come about during the Danish invasions concerned the fighting men—the *thanes* and the *fyrd* In those days travelling was very slow, and service in the fyrd was limited to the shire The king had to depend more and more on his thanes for his army, so it gradually came about that the thanes did most of the fighting, while the freemen had to look after the land Below the freemen, however, were the *bondmen* or *serfs*, who did not receive wages for their work, but were bound in return for their holdings to give part of their time to tilling the land of their lords.

Now that England was united under a single king, it was divided into *shires*, or shares. The making of shires took place slowly. Some shires, like Essex and Kent, were old kingdoms; some, like Norfolk and Suffolk, were parts of old kingdoms; some were named after certain settlers; thus Dorset was the *settlement of the Dors*, and Somerset was the settlement of the Somers. Some shires, like those in the Danelaw, were called by the name of the chief town. Such shires were Derbyshire, Nottinghamshire, Leicestershire, Northamptonshire and Bedfordshire

The chief meetings of the Saxons which were called folk-moots now became *shire-moots*. The earl was the head of the shire-moot, and to the meeting also came the bishop, many thanes and some freemen Another most important person was the man who came in place of the king, to see that king's justice was done. This man was called the *shire-reeve*, or *sheriff*.

CHILDREN'S STORY

The homes of the Early English.—We are now going to hear about the way in which

KING AND MINISTER DOING JUSTICE AT A GATE—ELEVENTH CENTURY

MS. Cott Claud B. iv

SKETCHES FOR THE BLACKBOARD

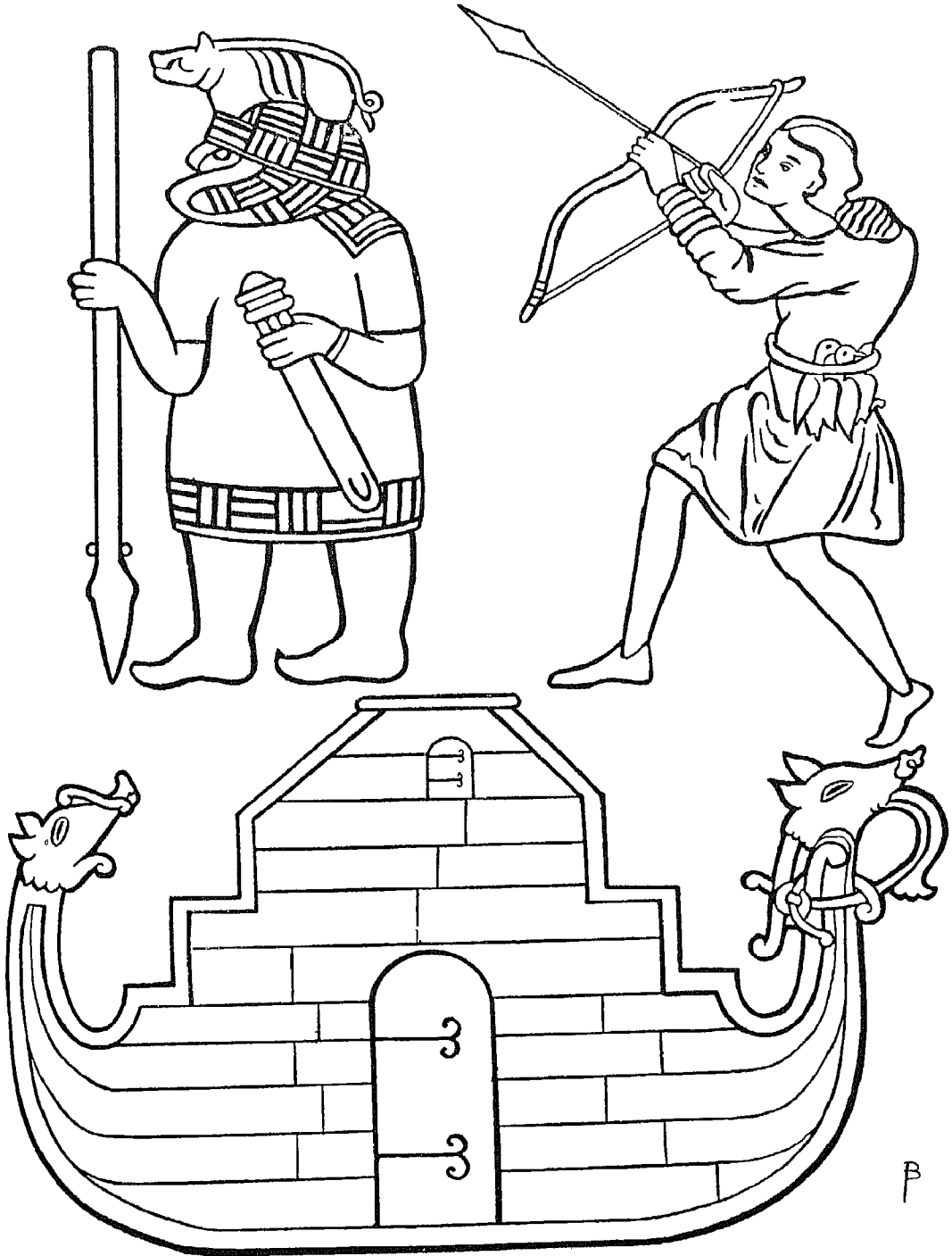



FIGURE OF NORTHERN WARRIOR — EARLY ENGLISH ARCHER

NOAH'S ARK IN THE SHAPE OF A DANISH SHIP

the ordinary people of King Alfred's time lived in England You must remember that most of the people lived in villages and worked on the land.

The wooden huts of the villagers consisted of one room divided by a hurdle to separate the pigs and poultry from the family Where the village had passed into the hands of a lord, the huts were built round his larger house, which was usually erected in a yard surrounded by a mound and fence The chief part of the house was the hall in which the lord with his family, his guests and his servants met for meals The walls were covered with curtains, the fire was lighted on the hearth in the middle of the room, and the smoke escaped through a hole in the roof Narrow holes in the walls served as windows. They were sometimes covered with oiled linen, for window glass was unknown

In a great lord's house at mealtime boards were placed on trestles and the lord sat at the head of the table. The lady handed round the drink, and then joined her husband at the table (There is a blackboard sketch—page 143—of a silver pendant showing a little figure of a woman holding a drinking horn It illustrates the old Northmen's custom that women should carry the horn round to the warriors seated at the feast.) There were dishes, but no plates or forks. Each person took the meat in his fingers, and either bit off a piece, or cut it off with a knife, as farm workers do to-day There was plenty of bread, butter, game, meat and fish, but potatoes were unknown As, moreover, there were no turnips or other root crops to feed the sheep and cattle, most of the animals were killed off in autumn and salted down for winter use Much pork was eaten, for pigs could find food in the forests After the meal was over the ladies retired, while the men went on drinking. The men did not smoke, for tobacco was unknown in those days Hard drinking was one of the worst habits of the men, often it led to quarrels. Minstrels and jugglers were always welcomed at the hall to sing songs or to do tricks When the feast was over the lord went to his room, and the ladies to other small rooms called bowers, each of which had a door opening to the yard; the lord and his lady had beds with curtains round them, but the guests and others slept on the floor on rugs, or straw No night clothes were used, if people undressed they wrapped themselves in rugs

The villagers mostly lived on pork, bread, butter and cheese, with now and then a rabbit or hare, a fowl or duck, and a few eggs Every cottager drove his pigs into the forest, and every cottager, too, kept his hive of bees for the honey that was used as we use sugar. They brewed their own barley beer; they made their own rough shoes from the hides of cows and pigs, and both men and women wore coarse cloth garments woven from wool, and underclothes of linen made from flax.

They rarely used money, but exchanged with each other different things, such as corn for meat, meat for ale, etc As the towns grew larger, markets arose to which the villager and his wife took their produce to sell or exchange for things needed for the household People went to bed early, and got up early. There was not much to do in the evenings and the rushlights were dim and scarce Outside the monasteries few people could read or write, there were no lighted streets with attractive shops to look at, no places of amusement such as theatres and cinemas A thousand years had passed since the Romans came to Britain, and yet what very simple lives our forefathers led! It makes us wonder how they managed without tea, coffee, cocoa, and chocolate, without trains, motor cars, and electricity; without a hundred things that we should miss very much But with a hut, some land, a few sheep and some pigs and poultry, they had all that was really necessary for life.

THIRD YEAR'S COURSE OF HANDWORK FOR THE HISTORY LESSONS

THE ROMANS. I.

The first exercise shown is a simple group model of a Roman temple. A large cardboard box, a big sheet of thin card and a plentiful supply of clay will be needed for its construction If a round box is not obtainable, a large sheet of thin card may be rolled and gummed at the ends to form an open cylinder, Fig 1 A Using compasses, the children must first draw the circles, one larger than the other, on the modelling board, and then place a mass of clay about the size of a walnut in each circle The masses must be well pressed down, and the irregular surfaces afterwards smoothed with a flat piece of wood. The smaller slab is then placed upon the other, Fig 1 B. The round box is set in position on the slabs, and well pressed down into the clay to make a circular mark The box is removed, and at a distance of about $\frac{1}{8}$ in. from the outer side of the mark, a series of eight or ten match sticks is pushed into the clay, leaving about $\frac{3}{4}$ in. of stick projecting above the surface as shown

The members of the group must then make the same number (eight or ten) of clay columns (Fig. 1 C), the height of which must be slightly less than that of the cylindrical box. To produce these, the children must roll long cylinders of even thickness, using some sort of gauge—a strip of paper or a kindergarten stick—to ensure that they are all of the same length The capital at the top of each is made from a wider roll, modelled to shape, and affixed to the column.

The finished columns are allowed to dry for a short time so that they harden slightly, they are then carefully pressed on to the match sticks The box is painted a drab stone tint, the doorway being either painted upon it, or cut out from it and afterwards placed in position. To make the flat conical roof a large circle with a segment removed is cut from a sheet of thin card, Fig. 1 D. A triangular fixing tab is left, but care must be taken to ensure that the children do not score along the dotted line, or an unsightly ridge will appear at the join The cone is glued together and placed in position to complete the model, Fig. 1 E The roof may be painted a brownish red to represent tiles

Fig 2 B shows a simple paper-cutting exercise of the head of Janus, of whom the children have heard in the lesson The shape is cut out on folded paper (Fig. 2 A), and some single leaf units are used to decorate the top of the finished head.

The Roman standard (Fig 3 D) is another paper-cutting exercise The shape is cut out on folded paper (Fig 3 A) which is again folded on the middle line to produce the angular ends. It is painted with the inscription (Fig 3 B) and stuck on to a notched kindergarten stick (Fig. 3 C), with a circle of card fixed as shown

Fig. 4 shows a more elaborate standard, the bird and the shapes above it are of thin card, while the decorations below are moulded pellets of clay.

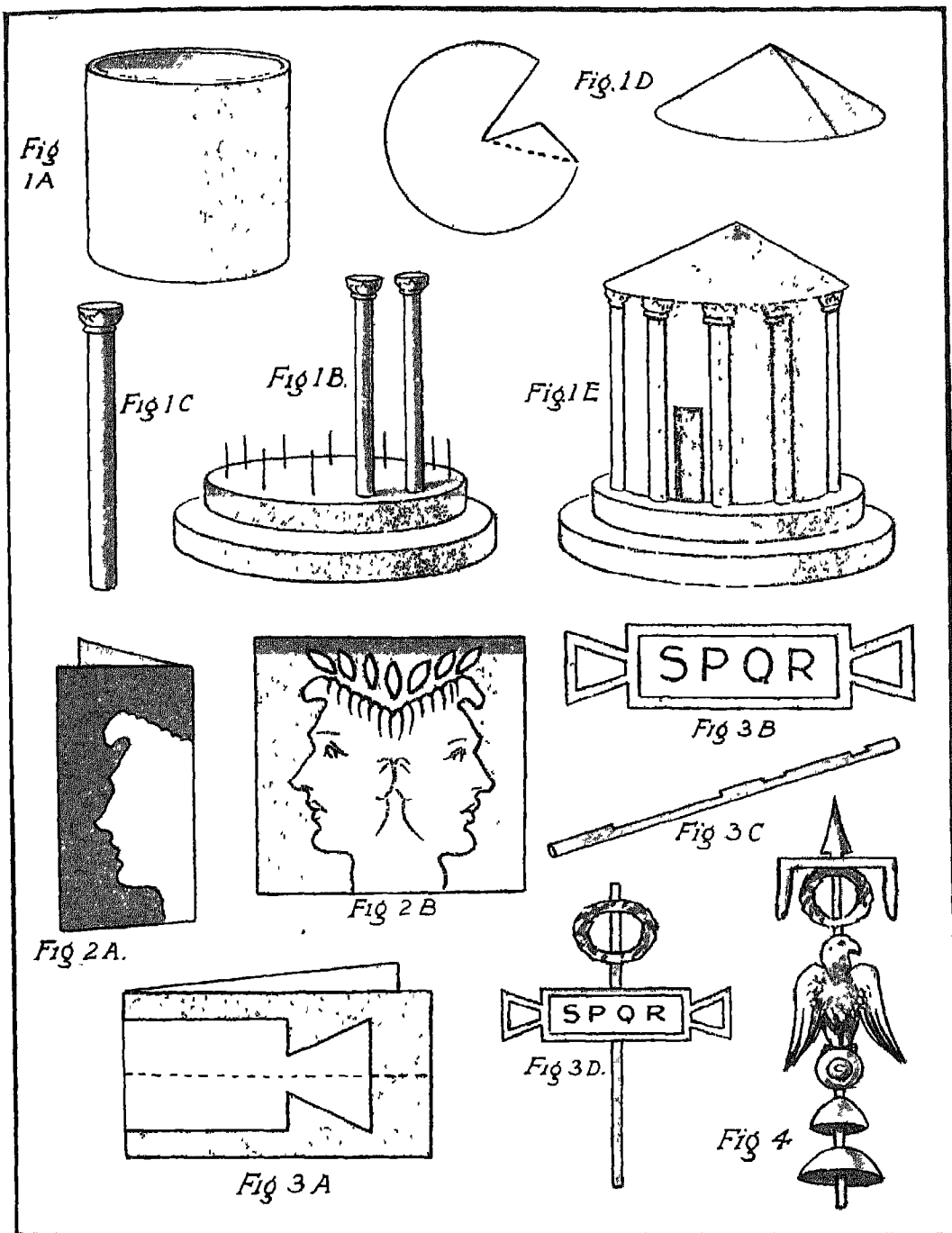



PLATE I

Fig 1 Temple of Vesta in Clay and Card
Fig 2 Paper-Cutting—Head of Janus
Figs 3 & 4 Roman Standards in Paper, or Card and Clay

THE ROMANS. II.

To make the group model of a Roman villa, the children will require a fairly large shallow cardboard box, like those used by tailors and dressmakers If such a box is not available, a taller one may be cut down to the required height, making a guide line round the sides before cutting. The rough edge may be smoothed down with the rough surface of a Swan Vesta match box.

The next step is to divide the box into two unequal parts by a vertical partition, Fig. 1 A. Make a strip of cardboard the width and exact height of the box, allowing a 1 in. fixing flap at each end. Gum the flaps so that they bend towards the back of the model. As shown in the sketch of the completed model (Fig. 1 C), the villa is made up of one long dwelling placed at the rear and two shorter houses fixed at the sides.

The longer house is planned first. It is made in the usual manner from thin card and will give the children exercise in working to measurements, for its length must be just slightly less than that of the inside of the prepared box, its height should be about twice that of the surrounding walls. A long strip with a ½ in. flap is gummed across its front to produce a shading roof which is supported by cut lengths of meat skewer, or narrow paper cylinders. It is painted a drab whitish tint, with windows and doors as shown, Fig 1 B (Note that spaces must be left at each end of the small roof to allow room for the side houses.)

The two side houses are next planned; they may be made lower than the main building in order to accentuate the height of the latter The three houses are then fixed in position. The pathways are drawn out as shown and are painted with gum While the gum is wet, they are sprinkled with fine sand which gives the effect of gravel The next day, when the paths are quite dry, the lawns are similarly painted with gum, and are given a liberal dressing of dark green pastel dust, while the paths are protected from the dust by strips of paper placed over them A simple decorative clay fountain is placed in the middle of the main lawn, and doors are either cut or painted on the partition and on the front wall The model is now complete

The next model shown on the plate illustrates the story of *How Horatius Kept the Bridge* For the group model, a large sand tray is required, on which two clay cliffs are built up, one on each side, Fig 2 B At the top of one of these is fixed a strip of cardboard, cut at the top like battlements, to represent a fort. The rocks are given a dressing of brown, green and yellow pastel dust, while the river space between is similarly treated with pale yellow pastel fragments. (Reference should be made to the tawny colour of the famous "yellow Tiber," which is due to the large quantities of sediment carried down by the water) Next, a bridge of wood is constructed which will provide work for many fingers As shown, it consists of several X-shaped supports which carry a thin strip of wood or strawboard The supports are made by binding thin twigs together with thin wire; the supports are joined by a horizontal bar, made from a short piece of twig The children may place on the bridge a number of plastic soldiers, modelled on a very small scale A pastel background completes an effective group

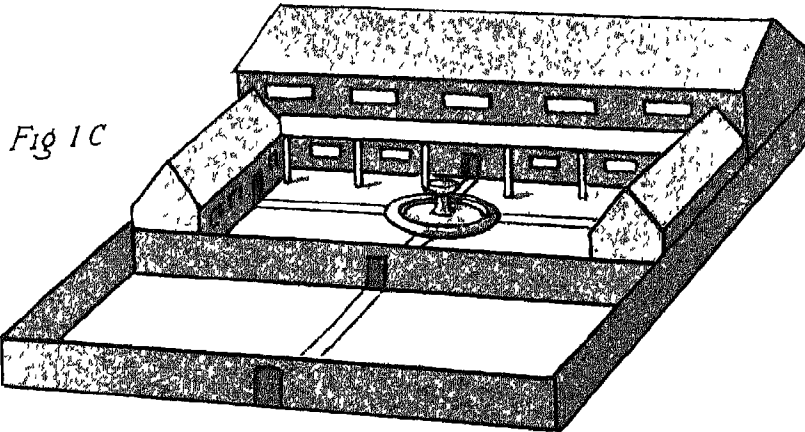
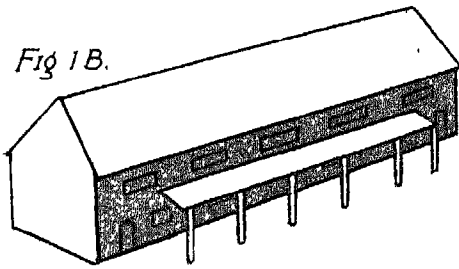
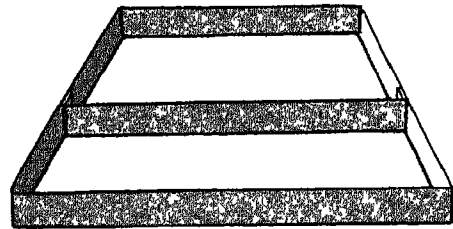
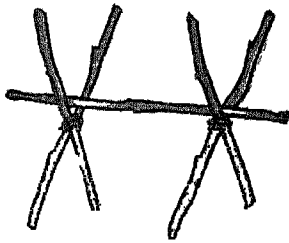
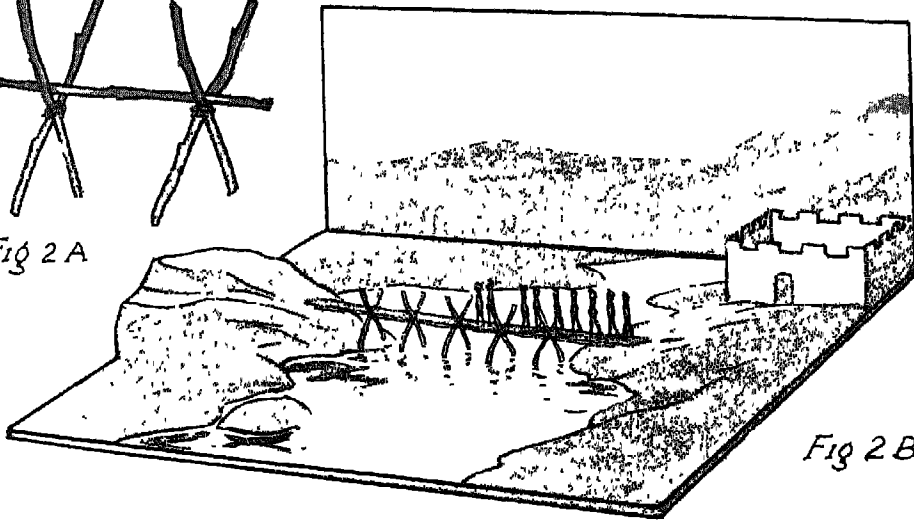



PLATE II

FIG 1. GROUP MODEL OF A ROMAN VILLA IN CARD
FIG 2 GROUP PROJECT ILLUSTRATING HORATIUS

THE ROMANS. III.

The handwork exercises shown on the accompanying plate illustrate Roman life in peace and in war The first model is that of the fasces, a bundle of rods bound up with an axe, which was carried by the lictors, symbolical of their power to punish evil doers either by beating or by execution, Fig 1 A. For this model a number of kindergarten sticks, some lengths of thread and a small piece of cardboard are required. Seven or eight sticks of equal length are cut and one shorter one, these are bound together at the top as shown Next, a single stick is cut and carefully split at one end, Fig 1 B. A thin cardboard shape of an axe head is cut out, and is placed in the split of the wood already made The completed axe is slipped into the place left for it in the bundle, which is now ready to be bound. Finally, take a long piece of thread and pass one or two loops round the band already holding the sticks together Next (Fig. 1 C), carry the thread obliquely round the bundle in the manner shown, until five bands are completed. It may be helpful to notch the stick slightly with a knife at the parts where the bands pass, in order to hold the thread

The children will know that one part of the Roman war equipment was a breastplate made of strips of stout leather suspended from the shoulders by straps Such a Roman breastplate forms the next model For the breastplate, thin card and some small paper fasteners (size 000) will be required Begin by planning out the four long strips for the breastplate, and the four shorter strips for the shoulder straps, about ¼ in. wide, Fig 2 A. To enable the children to estimate the length of these strips it will be helpful to cut paper patterns first. Each of the long strips is a little shorter than the previous one to allow for the fitting of one ring upon another The strips are cut out, the ends pierced, and the four longer ones are joined together to form rings. The rings are then placed overlapping one upon another, and are stuck together with a little gum; three of these stuck together are shown in Fig 2 B. When the breastplate is dry, the shoulder straps (Fig 2 C) are fixed with paper fasteners. A more interesting model is made by placing the breastplate upon a small doll The girls should, in their needlework lesson, make a small tunic for the doll (Fig 2 D) before the breastplate is put on. The tunic may be red, while the breastplate should be painted orange, brown or yellow

The Roman helmet should be compared with the Greek helmet, which was made during the previous year's course, the modelling of which is described in Vol II, page 151. Fig 3 A shows the fundamental shapes of a plastic model of a Roman helmet,—a hemispherical shape with an elongated neck portion, and a long graduated strip for the helmet front. Figs. 3 B and C show two types of helmet which may be attempted by the children. The decorative shapes are added to the basic parts and the helmets are painted yellow. The plume in Fig 3 C should be red.

Fig. 4 shows a cut-out of a Roman magistrate The toga should be painted cream, the body Chinese white and yellow.

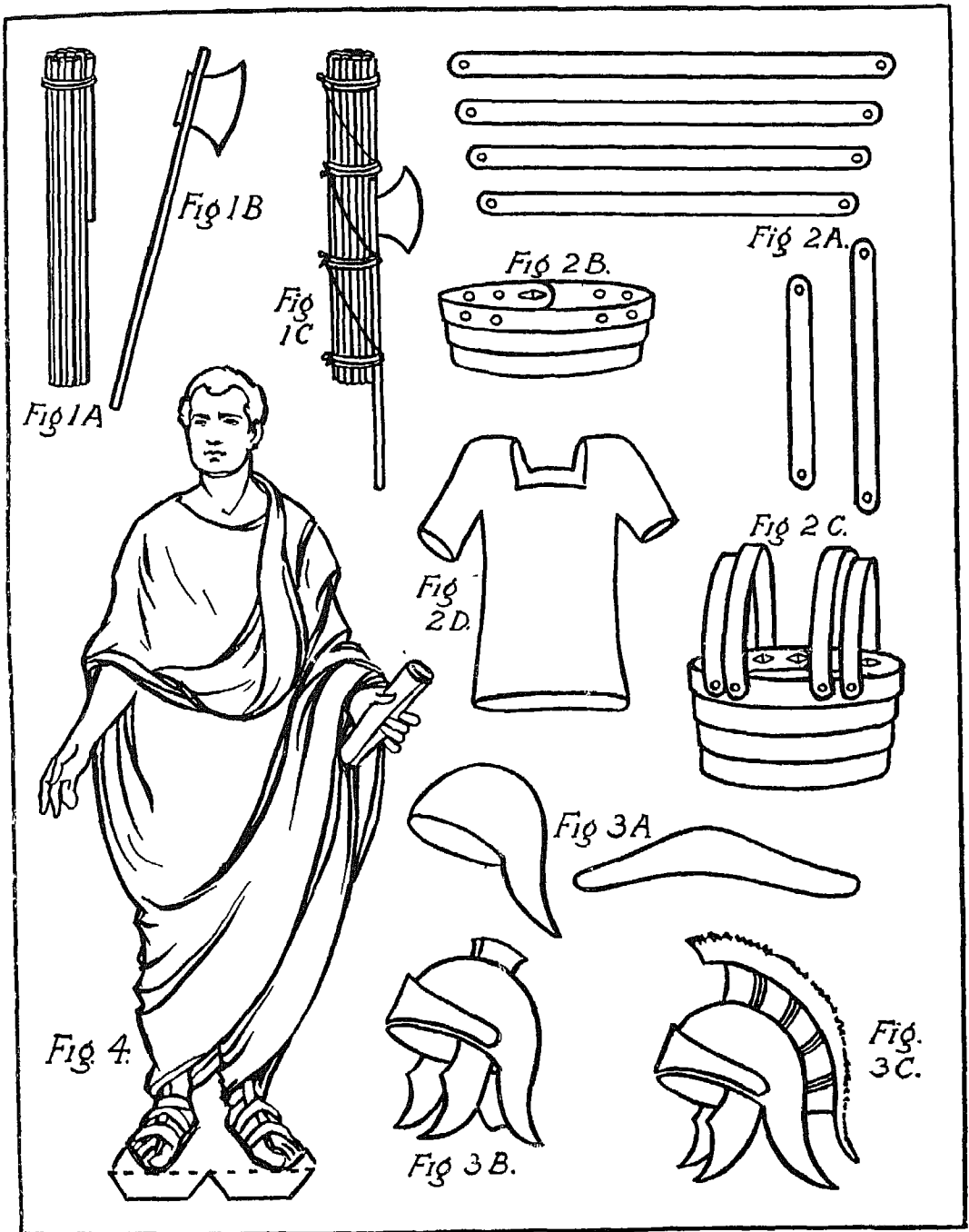



PLATE III

Fig. 1 Fasces in Kindergarten Sticks and Card
Fig. 2 Roman Breastplate in Card and Tunic in Material
Fig 3 Plastic Models of Roman Helmets
Fig 4 Cut-out of a Roman Magistrate wearing a Toga

THE ROMANS. IV.

These handwork exercises deal with the Roman implements of war, and form a continuation of the work described in the last section.

The Roman shield was of a peculiar shape quite different from other contemporary shields The study of shields is an interesting one, throughout their historical course the children might make a study of the evolution of shield types, illustrating their work by a collection of models. Or on the other hand, all the classes may combine to make a comprehensive collection for the whole school, which shall cover, for example, a period from the Assyrians to the Crusaders In considering the Roman shield, the teacher should call attention to the love of art among the Romans, and show that their shields were as a rule tastefully decorated The Class Pictures also should be studied for purposes of illustration and elucidation

The first type of shield shown is perfectly rectangular in shape (Fig. 1 A), and is decorated with a border and a simple central design In order to give the children more scope for their attempts, it is suggested that the rectangle alone should be cut first in fairly thick card Using this rectangle as a pattern, trace the shape on to another piece of card, rule out and draw the narrow border, then remove the central portion by cutting along the inside edges of the border with a knife. The result will be a frame which is stuck on to the top of the original rectangle and forms the border. The whole is now placed under a weight to dry while the central design is worked out in paper-cutting, allowing the children to experiment When the desired paper shapes have been obtained, allow the children to place them on the cardboard, trace round the shapes and cut them out The shapes are then stuck on to the shield to complete it. When all the shields are complete, an appropriate group exercise would be to fix them together to form a " tortoise," which is shown in the Class Picture No 29 To enable this to be done, a piece of very thin card or thick paper should be stuck behind each shield (Fig. 1 B) so that about ½ in is free on each side The shields may then be locked together to form the edges and top of the "tortoise " Fig 1 C shows another type of Roman shield made on exactly similar lines; in this case, however, a paper pattern should be first cut from folded paper to produce a symmetrical point

The next exercise shown is that of a plastic model of the short Roman sword The cross piece (Fig 2 A) is modelled first, at the top of this an elliptical recess is made, and a narrow rectangular one at the bottom The rounded handle is made (Fig 2 B), then the flat blade (Fig 2 C). These are fitted into the cross piece (Fig. 2 D) and when dry the model is painted, ink being used for the blade, and brown and yellow paint for the handle

Fig 3 shows a group model of Hannibal's raft, constructed of strips of rough wood, bound together with thin wire and provided with clay floats and oar rests In constructing this, the children should refer to the Class Picture No 27, for they will certainly delight in adding one or two clay elephants The oars are made of kindergarten sticks with paper ends

The Roman soldier cut-out should be painted in bright reds and yellows (Fig 4) and with brown for the shield

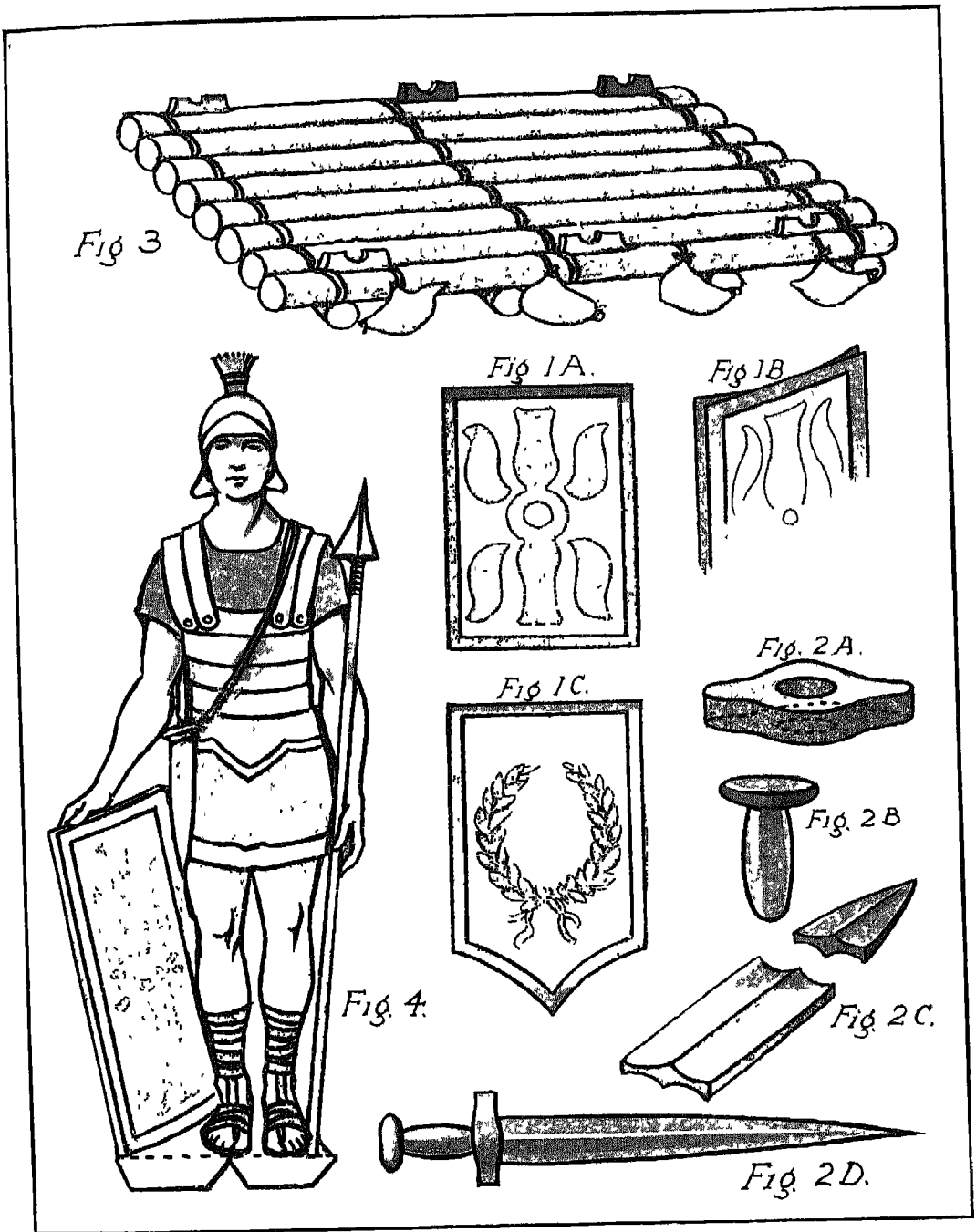



PLATE IV

Fig 1 Roman Shields in Card
Fig 2 Plastic Model of Roman Sword
Fig 3 Group Model of Hannibal's Raft in Firewood, String and Clay
Fig 4 Cut-out of Roman Soldier

THE ROMANS. V.

As well as being great land fighters, the Romans were renowned for their prowess on the sea Here again is further scope for a series of evolutionary models. In the course of the four years' work in history, more boats and ships will be described and made The teacher should retain the best of these for the historical museum to illustrate the development of ship building through the ages

The accompanying model is fairly complex in its structure, but it should be within the powers of children studying the third year's course Fig 1 A shows the principle which underlies its construction. It is planned on the flat, as shown, and folds upwards, producing a flat bottom. On a sheet of fairly thin cardboard a long narrow diamond shape is drawn,—shown by the dotted lines on the diagram Two important points must be noticed in this connection. firstly, that the shape must be *narrow* (from experience it is found that children are apt to make the shape much too wide, with the result that the finished model is badly out of proportion); secondly, that the figure is unequally divided fore and aft,—the bow being slightly longer than the stern

The children must next measure on a piece of paper the lengths AB and XY. These dimensions are drawn on another piece of paper as the starting points for the two shapes seen in Fig 1 B In drawing these figures, it will be observed that they have a slightly upward sweep in their top curves, and that the bow portion is provided with triangular fixing flaps The shapes are cut out from the paper, applied to the lines AB and XY of the shape drawn on the card, and used as patterns round which lines are drawn The resulting figure on the card should resemble Fig 1 A, it is symmetrical longitudinally, for the patterns need to be reversed on the lower side of the middle line The dotted lines should be slightly scored

It will be found best to attend to the painting of the model at this stage It should be coloured in rich browns and yellows At this stage also it will be advisable to cut the holes to receive the oars When the paint is dry, the sides are folded upwards, and the fixing tabs are stuck on the inside of the boat. Those at the bows may require a little trimming down It will be found that the canoe-like stern pieces will require no tabs; they may be gummed together bodily A rounded shelter is modelled in clay or plasticine and fixed in the stern as shown in Fig 1 C. Oars,—kindergarten sticks with paper ends,—are thrust into the holes already made to receive them Note that one larger oar is fixed for steering at the "steer board," from which term we derive the modern word *starboard*.

Children are thrilled by the stories and pictures of the gladiators of ancient Rome. The next model shown is that of a gladiator's helmet; it is quite distinct in shape from the Roman soldier's helmet described in the last chapter The first stage in the construction of the helmet is to model a cone, bending it into the shape illustrated in Fig 2 A. To this a flattish rim is fitted (Fig 2 B) and slightly curled The gladiator's trident is cut from folded paper (Fig 3 A), opened out and fixed into a cleft kindergarten stick (Fig 3 B) to complete the model.

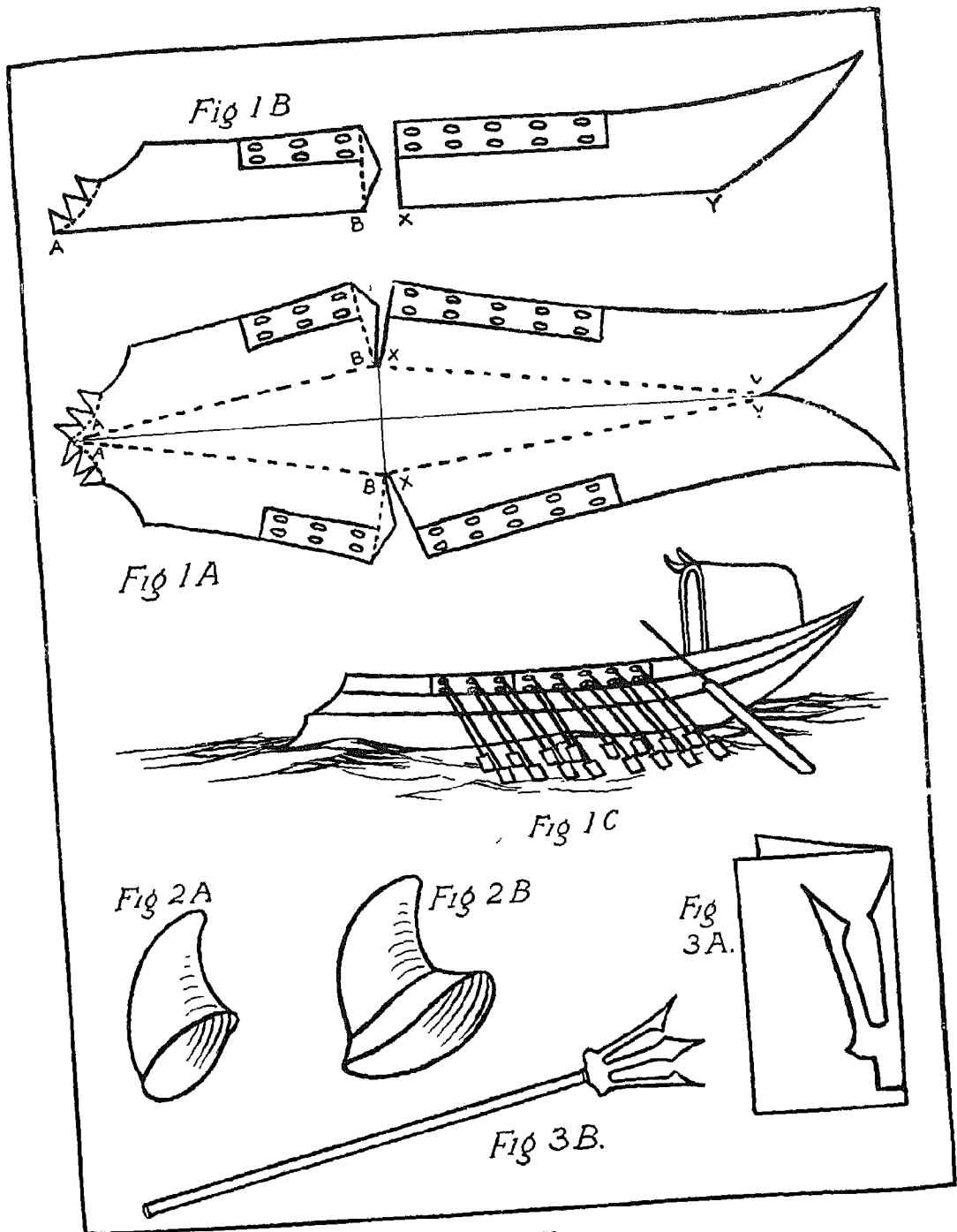



PLATE V.

FIG. I. ROMAN GALLEY IN CARD OR PAPER
FIG 2 PLASTIC MODEL OF A GLADIATOR'S HELMET
FIG 3 GLADIATOR'S TRIDENT IN CARD

THE ROMANS. VI.

The previous lessons have dealt fairly comprehensively with the military equipment of the Romans. In this lesson our attention is directed to the domestic life of the people

The better class Romans used a litter to convey them about the city The Roman litter resembled the Sedan chair which was used at a much later period in history The children may already know something of the Sedan chair; a picture of it should be shown for comparison

The first model illustrated is that of a Roman litter To make it, each child will require four kindergarten sticks, a Swan Vesta match box or a similar small shallow box, some thick strawboard and some thinner card Old showcards will be found useful for providing the strawboard if this is not available in the school Fig 1 B shows how a hole is made at each corner of the match box to receive a kindergarten stick The sticks, which should be of uniform length, are thrust through the corners. The top of each stick may be slightly pointed with a knife and a small cube of cork is fixed to the top of each one A base which helps to keep the framework rigid is made from two strips of strawboard in which two holes are made to hold the ends of the sticks

Next, a shaped back is fitted to the litter. The construction of the back is shown in Fig. 1 A. It consists of a strip of cardboard divided into three, and provided with fixing flaps at the base, to fit into the inside of the match box. A paper shape of the curved side pieces should be made as a pattern and traced on the card, first on one side and then on the other, so that the side pieces are symmetrical The top is a rectangle of stout strawboard cut large enough to extend a little on each side; this is fixed with strong adhesive to the tops of the cork cubes already fitted As shown in the finished model, a curved decorated portion is fitted to the roof The fixing of this is a simple matter, (Fig 1 C) a strip of thin card, a narrow rectangle, is cut out with straight flaps on the long sides and is stuck to the strawboard roof The children should stick down one flap first, and fix the other when the first is dry so that the card does not slip out of position

Finally, the model should be painted in bright yellow to resemble gilt, with added touches of red and blue. As a reward for good work, one or two of the best litters might be tinted with cheap gold paint. Two sticks, the carrying poles, are stuck to the sides of the litter (Fig 1 D), and some small, brightly coloured discs of paper are added to the uprights.

The remains of Pompeii show us that the inhabitants of this doomed city kept their wine in pointed jars which were stuck into the ground The next exercise shows the making of one of these jars in clay or plasticine The fundamental shapes are shown in Fig 2 A These are welded together and modelled to form the finished jar, Fig 2 B The point of the modelling tool is rotated in the solid end of the jar to hollow the neck. Two handles are also fitted.

The paper-cutting exercise of a Roman pottery jar is first developed on folded paper (Fig 3 A) and afterwards decorated with brightly tinted paper appliqué work, Fig 3 B. The handle is added in a similar manner

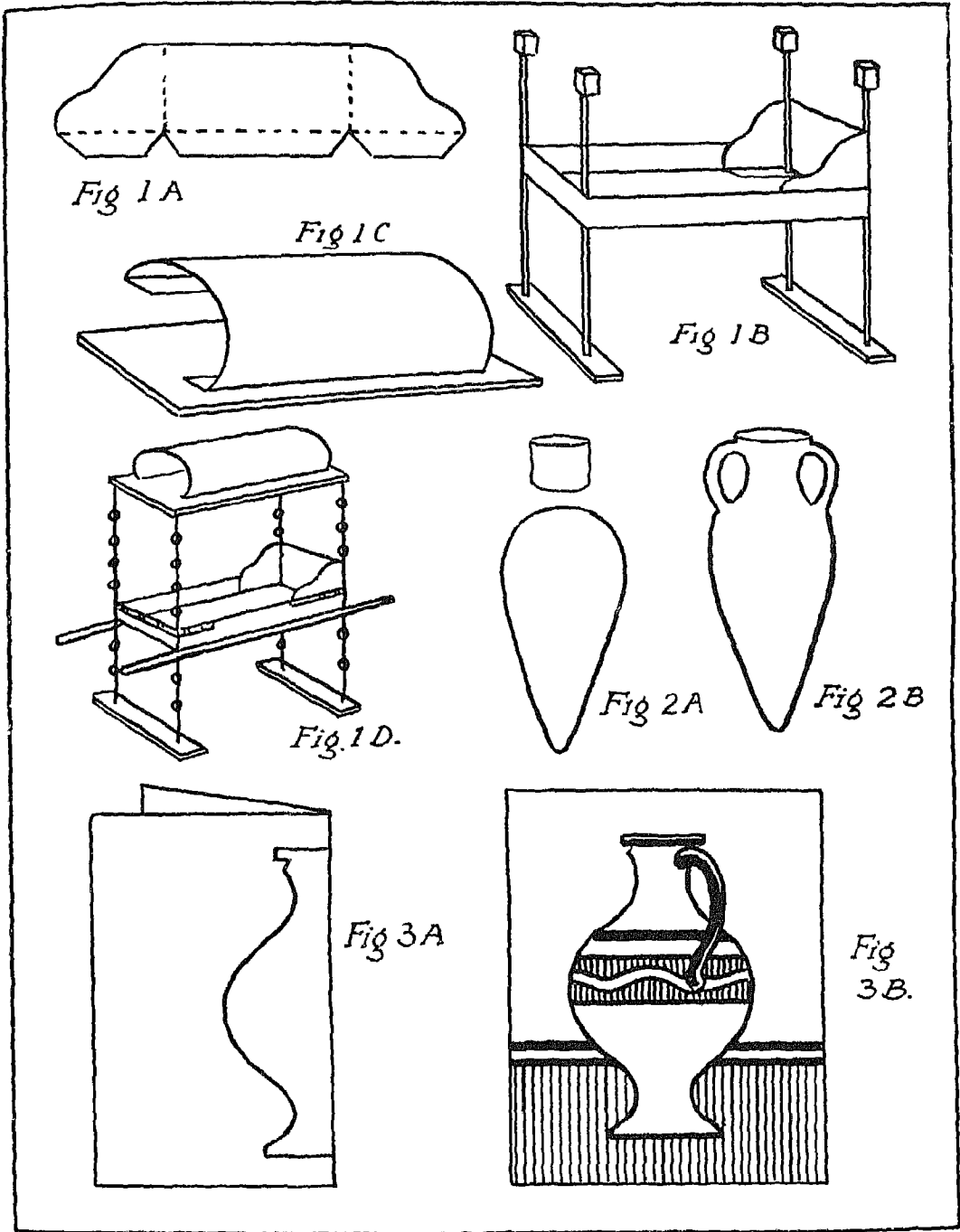



PLATE VI

FIG 1 ROMAN LITTER IN CARD, MATCH BOX AND KINDERGARTEN STICKS
FIG 2 PLASTIC MODEL OF A POMPEIAN WINE JAR
FIG 3 PAPER-CUTTING—ROMAN JAR

THE SAXONS

Passing on from the Romans and their influence upon Britain, the lessons of the Children's Stories next deal with the habits and customs of the Saxons The children will now be familiar with the costumes worn by the Romans in military and domestic life, and will be able to compare them with those of their early Saxon forefathers

The first model shown on the accompanying plate is that of a Saxon helmet. Its form is a particularly simple one, based on the cone and the cylinder, and reminiscent of a fool's cap The model is best made in stout cartridge paper, for the children will have some difficulty in bending cardboard to the requisite shape, and cardboard has also a tendency to spring away during the process of sticking First of all, a circle is drawn with compasses on to the cartridge paper (Fig 1 A), and a segment is cut out, leaving a triangular fixing flap as shown Take special care at this point that the children do not fold this flap, as is usual with most tabs, for if they do, an unsightly straight ridge will appear down the side of the helmet. A little adhesive is applied to the tab, and the cone is carefully bent to shape and fixed It is put aside to dry while the children prepare a long narrow strip with a triangular fixing tab at the end, which must also be left unfolded. A short portion of this strip is seen in Fig 1 B When the cone is thoroughly dry, the long strip is applied to its lip and fixed by means of the small triangular flaps, Fig. 1 C This exercise provides an opportunity to instruct the children that the length of the strip must be $3\frac{1}{7}$ times the diameter of the lip of the cone. The helmet is now inverted, narrow strips are pasted along its oblique sides, and the whole is painted a greenish yellow to resemble brass Fig 1 D.

Another common type of Saxon head-dress, worn during the more peaceful pursuits of the people, was the cloth Phrygian cap seen in Fig. 2 B This is a capital model to be made in clay and afterwards coloured in bright tints From a ball of clay a stunted cone is modelled (Fig. 2 A); the interior is scooped out and afterwards smoothed with the finger tips To the end of this a pellet of clay is attached and the whole is modelled to shape, a narrow strip of clay being fixed at the base to complete it The fold down the side is marked with the blade of the modelling tool, and a few tiny pellets are affixed to form a decoration. A longer cone, bent into shape as seen in Fig 3, will produce a Saxon drinking horn This is decorated with an appliqué pattern of small clay triangles and an encircling band as shown

The Saxon shield was a fairly primitive affair of wooden boards, iron and leather To construct this model a disc of rather thick card is cut and a circular portion is removed from the centre, Fig. 4 A Across this and behind it (Fig 4 B) a plastic handle is fixed, and in the front a plastic rounded boss is attached. Two ornamental strips of card, representing iron, are fixed on the front, and the whole is painted a dull brown.

The last model shown (Fig. 5 B) is that of a Saxon doorway which preserves the rounded Romanesque arch. This is a simple brick-building exercise The model is constructed by building up clay shapes on the flat modelling board, Fig 5 A.

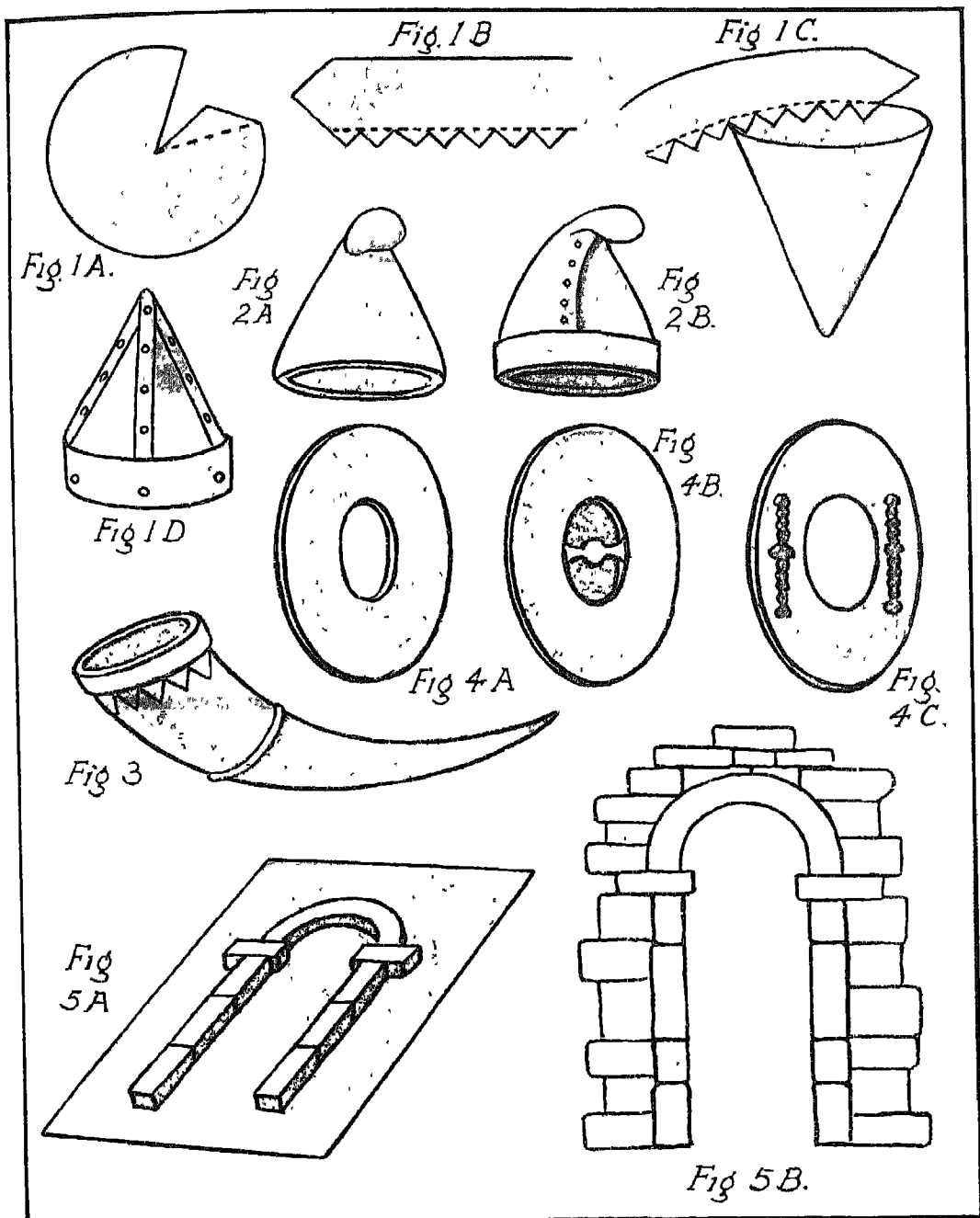



PLATE VII

Fig 1 Saxon Head-dress in Carton Paper
Fig 2. Plastic Model of Saxon Head-dress
Fig 3 Plastic Model of Saxon Drinking Horn
Fig 4 Saxon Shield in Card
Fig 5 Saxon Doorway in Clay

THE SAXONS AND VIKINGS

In the last lesson, the Saxon dress was seen to be of a primitive nature, the farming implements—ploughs, flails and wagons,—also partake of this primitive character

The Saxon farm carts, as seen in the old manuscripts and chronicles, were rectangular vehicles with their sides made of wattle, and were drawn by teams of oxen The first exercise illustrated on the accompanying plate shows how the children may construct a model of such a wagon from a box lid, some cardboard strips and raffia First of all, the box lid is inverted and a number of cardboard strips are cut, long enough to extend well above the sides of it These are stuck carefully along the three edges of the lid. To make them doubly strong for the ensuing process of weaving, a paper fastener (size 000) should be thrust through the base of each as seen in Fig 1 A. A narrow strip of card, bent at right angles at each end and punched in the centre of the bent portions, forms the fitting for the axle, and is stuck to the underside of the lid

The children now prepare for the weaving to represent the wattle sides For this, a raffia needle and some dark brown raffia will be wanted Starting at the bottom left hand corner of the framework, fix the end of the raffia by means of a loop. With the needle, take the strand over and under the vertical framework until the extreme end of the other side is reached. Then take the raffia right round the last support and reverse the weaving back to the starting point Continue the process until the weaving reaches the height of the horizontal bar, then tie the loose end round the final support The next task is to prepare two wheels of fairly stout card (Fig 1 B) and to affix these to the axle,—a piece of kindergarten stick which is thrust through the cardboard fitment already in position on the lower side of the lid Finally (Fig 1 C), a long strip of card with cross pieces to receive two yoke of oxen is stuck to the front of the wagon, and the card is painted light brown or an orange yellow, the whole forming an attractive model, well within the constructive powers of children in the third year of the school course.

The *seaxe*, the battle axe with which the Saxons usually fought in hand to hand encounters, is chosen as the next model. It had a double edge and made a formidable weapon Its construction begins with a paper-cutting exercise, the shape is cut on folded paper (Fig. 2 A) which, when opened out, produces the double-edged blade Two of these shapes are required for the model One of them is opened out, placed on the desk (Fig. 2 B), well pasted, and a length of kindergarten stick is laid down the centre line On the top of this the other pasted shape is fixed, and the two are smoothed together, Fig 2 C.

The Children's Story refers to the inroads made by the Viking marauders upon the shores of the Saxons. Figs. 3 A and 3 B show types of Viking helmets in plastic modelling, which may be afterwards compared with the Greek and Roman helmets made in the earlier lessons of this course. The hollow conical helmets are first modelled and the curved neck pieces are added afterwards. The wings of the first helmet may be either modelled or made of painted card fixed to the sides. To fit the horns of the second helmet, holes are made in the sides of the helmet, and the horns are thrust into them and given a slight upward and inward bend.

Fig. 4 shows the cut-out of a Saxon to be traced on card It should be brightly coloured and made to stand up.

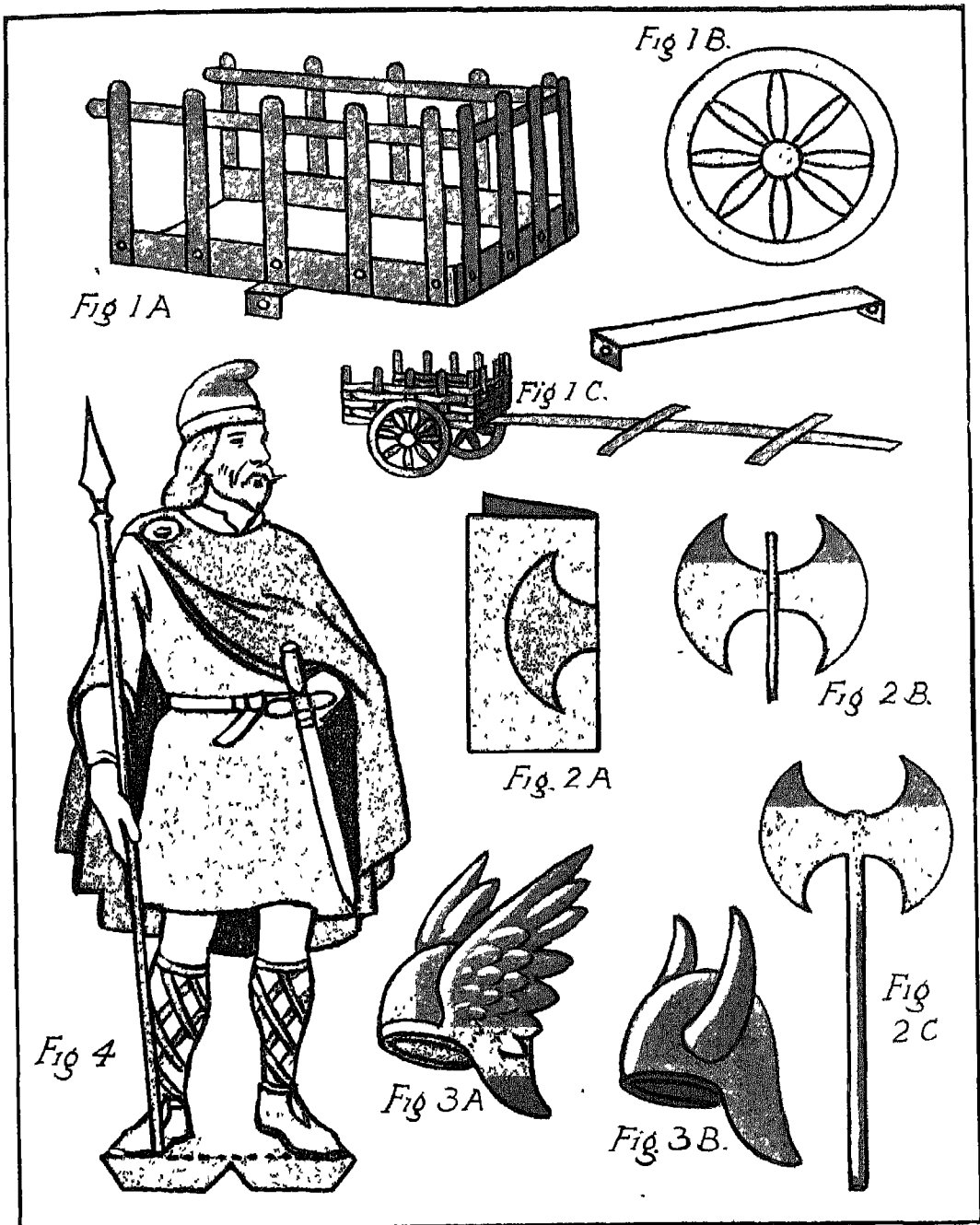



PLATE VIII

Fig 1 Saxon Cart from Card Box Lid and Raffia
Fig. 2. Saxon Seaxe in Card and Kindergarten Stick
Fig 3 Plastic Models of Viking Helmets
Fig 4 Cut-out of a Saxon

THE VIKINGS AND MOHAMMED

Interwoven with the story of the Saxons are accounts of the Vikings, who made repeated attacks upon the English coasts As their name implies, they were "sea-warriors" of the Scandinavian creeks, and were renowned for their skill as seamen A picture of one of their boats appears in the portfolio, Class Picture No 38. These boats had a picturesque appearance; at the prow was often placed a carved figurehead of some mythological creature, frequently a dragon.

The first model illustrated on the accompanying plate is that of a Viking boat, which is constructed in thin card or stout paper Figs. 1 A and 1 B show how the boat is developed from the flat shape. First of all, the children must draw an elongated diamond shape (shown by the dotted lines in Fig. 1 B), making the front portion of this a little shorter than the back. They must next measure, by means of a piece of paper, the lengths of AB and BC, and transfer the measurements to another piece of card Using these lines as bases, two shapes must be drawn to form the hull of the boat These are carefully cut out and used as patterns, from which the children provide themselves with two pairs of a similar hull shape in card, one pair for the bows and one pair for the stern of the vessel. (The teacher should point out that the ends of these which are to fit together must be of exactly the same height) Each of the hull shapes (Fig. 1 A) is provided with a long basal fixing flap. The next step is to fit these flaps on the under side of the diamond shape which is already prepared

The flat shape will now resemble Fig 1 B, and the sides are bent up to a vertical position. To hold the sides together, the inside surfaces of the dragon prow and the curved stern parts are smeared with gum, and are held with the finger and thumb until they stick securely Finally the central triangular tabs are stuck, care being taken to see that these are fitted to the inside of the boat. Next, the main mast, which may be a pointed meat skewer, must be fitted To do this, the children may use their own skill and ingenuity A possible method of fitting it is shown in Fig. 1 C, where a portion of cork is glued to the inside of a narrow strip cut from a match box case. A hole is made at the top and the skewer is pushed through this into the cork; the whole is then stuck to the base of the boat The sail is a bent piece of drawing paper painted in bold stripes,—say, blue and yellow—with a kindergarten stick glued to the top and bottom edges Rigging is added with a needle and thread, a number of brightly tinted shields of card are stuck to the hull to overlap one another, and several match-wood oars are stuck through holes made in the hull. The completed model is seen in Fig. 1 D. Teachers sometimes have difficulty in obtaining a good copy for a dragon A big pattern for tracing is given in Fig 1 E.

Fig 2 shows an Eastern cut-out scene to use in connection with the story of Mohammed. The sky is dark blue with a pale yellow moon and stars, the buildings of the mosque, cut on folded paper, are pale blue, the ground is dark blue, and to give contrast the foliage and trees are cut from black paper

Fig 3 shows a cut-out based on the statue of Alfred the Great at Winchester The helmet should be painted grey, the cloak red, the tunic green, the legs brown, and the shield and sword yellow.

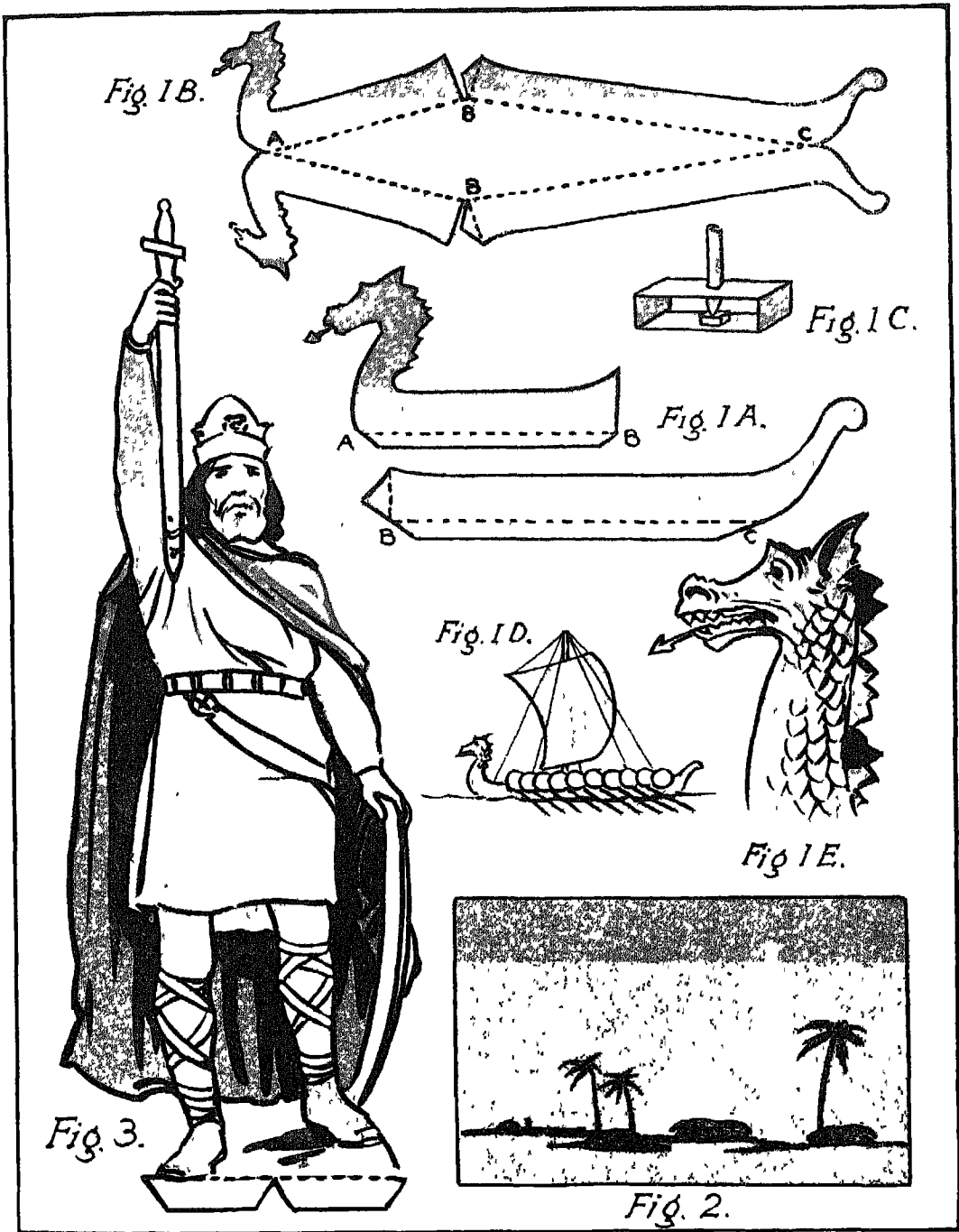



PLATE IX

FIG 1 VIKING BOAT IN THIN CARD
FIG 2 PAPER-CUTTING PROJECT—A MOHAMMEDAN SCENE
FIG 3 CUT-OUT—ALFRED THE GREAT

A SIMPLE HISTORY CHART

In order to give the children a clearer conception of the period covered by the History course for the third year, it is suggested that they should make a simple Time Chart to illustrate their History lessons. This chart may either be made at the end of the course, or it may be built up as the lessons proceed through the year, which is perhaps the better method.

For the chart, a long strip of dark brown or black paper will be required, about 2 ft. in width and 9 ft. in length. Across this, in the middle, two horizontal and parallel lines about 6 in. apart are drawn. The centuries may be marked off by drawing vertical lines 6 in. apart between the parallel lines, and the spaces representing the centuries may be filled in by pasting rectangular pieces of coloured paper on them, or by colouring them with pastel or poster-colour of varying tints. The centuries shown in the tables of the history section should be inserted

Next, certain dates should be marked by lines drawn vertically across the tinted areas in the approximately correct positions. The following dates should be marked.—

750 B C for Horatius.
200 B C for a soldier of Hannibal's time.
55 B.C. for Julius Caesar.
A.D. 410 for a Goth.
A.D 453 for a Mongol of Attila's time.
A.D 800 for Charlemagne.

On the accompanying plate will be found sketches to illustrate these characters They should be traced, coloured, cut out and pasted on to the black lines The spaces at the top and bottom of the central chart portion may be utilised for relevant contemporary pictures collected by the children and teacher. The whole will provide a useful decoration for the classroom wall

Horatius (Fig 1) should be tinted as follows: helmet yellow, cloak red, breastplate blue, tunic yellow, shoes light brown.

The soldier of Hannibal's forces (Fig. 2) should be tinted as follows: helmet yellow, cloak purple, tunic orange with black markings, belt brown, hem white, sword pale blue, boots brown

Julius Caesar (Fig 3) should be tinted as follows· helmet yellow with red plume, cloak crimson, breastplate yellow, tunic purple or green, boots orange, shield yellow and brown.

The Goth (Fig 4) requires a purple cap, brown cape, orange tunic and brown boots

The Mongol (Fig 5) should receive oriental bright colourings. plume red and white, cap black and yellow, tunic blue with yellow decoration at the top and dark orange beneath, fur white, decoration round the hem black and red, shoes black and white, quiver black and red and yellow.

Charlemagne (Fig. 6) is coloured as follows: crown yellow, necklet and belts yellow with red and green decorations, cloak purple, tunic pink with red and black hem, boots blue and black

PLATE X

FIG I HORATIUS
FIG 2 A SOLDIER OF HANNIBAL'S FORCES
FIG. 3 JULIUS CAESAR
FIG 4 A GOTH
FIG 5. A MONGOL
FIG 6 CHARLEMAGNE

THIRD YEAR'S COURSE

OF

ENGLISH

From the picture by Raphael A D 1512] [*Photograph* *Anderson*

MADONNA DELLA SEDIA

Raphael's "Madonna della Sedia" (of the chair) is the most popular picture of the Pitti Gallery, Florence The Virgin, seated on a low chair, holds the Child on her lap, the little St John at her side folds his hands in prayer

MODEL LESSONS FOR THE TEACHING OF LITERATURE

Scope of the work.—The two Model Lessons which are included in this section are intended as a guide to the study of prose in the classroom The Lessons are in the form of stories, with accompanying exercises, both oral and written, which are designed to bring out the full value of the text, and bear directly upon it. The exercises are based on the principles laid down in the General Introduction on the "Teaching of English in the Primary School" which is given in Volume I, page 131, of the Encyclopaedia They are framed to provide for language-study through the direct medium of the story unfamiliar words and phrases which occur in the text are brought up for discussion; word-study, memory work, tests of reading and exercises for composition are supplied. In addition, the intensive study of a chosen passage has been developed It is based on the article "Language-Study" in the *Handbook of Suggestions for Teachers* issued by the Board, now Ministry, of Education The reader is advised to refer to the General Introduction and to the introduction to the "Teaching of Literature" in former volumes, fully to appreciate the use and object of these Model Lessons

THE GUARDIANS OF THE DOOR

THERE was once an orphan girl, far away in a little village on the edge of the moors She lived in a hovel thatched with reeds, and this was the poorest and the last of all the houses, and stood quite by itself among brooms and whins by the wayside

From the doorway the girl could look

ROWAN TREE

across the wild stretches of moorland, and that was pleasant enough on a summer day, for then the air is clear and golden, and the moor is purple with the bloom of the ling, and there are red and yellow patches of bracken, and here and there a rowan tree grows among the big grey boulders with clusters of reddening berries But at night, and especially on a winter night, the darkness was so wide and so lonely that it was hard not to feel afraid sometimes. The wind, when it blew in the dark, was full of strange and mournful voices; and when there was no wind, Mary could hear the cries and calls of the wild creatures on the moor

Mary was fourteen when she lost her father He was a rough, idle good-for-nothing, and one stormy night on his way home from the tavern he went astray and was found dead in the snow Her mother had died when she was so small a child that Mary could scarcely remember her face. So it happened that she was left alone in the world, and all she possessed was a dog, some fowls, and her mother's spinning wheel (See blackboard illustration, page 225).

But she was a bright, cheerful, courageous child, and soon she got from the people of the village sufficient work to keep her wheel always busy, for no one could look into her face without liking her. People often wondered how so rude and worthless a fellow could have had such a child; she was as sweet and unexpected as the white flowers on the bare and rugged branches of the blackthorn

Her hens laid well, and she sold all the eggs she could spare; and her dog, which had been trained in all sorts of cunning by her father, often brought her from the moors some wild thing in fur or feathers which Mary thought there was no harm in cooking.

Her father had been too idle and careless to teach *her* anything, and all that she could recollect of her mother's instruction was a little rhyme which she used to repeat on her knees beside the bed every night before she went to sleep.

And this was the rhyme:

God bless this house from thatch to floor,
The twelve Apostles guard the door,
And four good Angels watch my bed,
Two at the foot and two the head.
Amen.

Though she was all alone in the world, and had no girl of her own age to make friends with, she was happy and contented, for she was busy from morning till night

And yet, in spite of all this, strange stories began to be whispered about the village People who happened to pass by the old hut late at night declared that they had seen light shining through the chinks in the window shutter when all honest people should have been asleep There were others who said they had noticed strange men standing in the shadows of the eaves; they might have been highwaymen, they might have been smugglers—they could not tell, for no one had cared to run the risk of going too near—but it was quite certain that there were strange things going on at the hut, and that the girl, who seemed so simple and innocent, was not quite so good as the neighbours had imagined

When the village gossip had reached the ears of the white-headed old Vicar, he sent for the girl and questioned her closely Mary was grieved to learn that such untrue and unkind stories were told about her. She knew nothing, she said, of any lights or of any men. As soon as it was too dusky to see to work she always fastened her door, and after she had had her supper, she covered the fire and blew out the rushlight and went to bed

"And you say your prayers, my daughter, I hope?" said the Vicar kindly.

Mary hung down her head and answered in a low voice, "I do not know any proper

prayers, but I always say the words my mother taught me."

And Mary repeated the rhyme.

God bless this house from thatch to floor,
The twelve Apostles guard the door,
And four good Angels watch my bed,
Two at the foot and two the head

Amen

"There could not be a better prayer, dear child!" rejoined the Vicar with a smile. "Go home now, and do not be troubled by what idle tongues may say. Every night repeat your little prayer, and God will take care of you."

Late that night, however, the Vicar lit his lantern and went out of doors, without a word to any one. All the village was still and dark as he walked slowly up the road towards the moor.

"She is a good girl," he said to himself, "but people may have observed something which has given rise to these stories. I will go and see with my own eyes"

PLOVER

The stars were shining far away in the dark sky, and the green plovers were crying mournfully on the dark moor. As he passed along, the lantern swung out a dim light across the road, which had neither walls nor hedges

"It is a lonely place for a child to live in by herself," he thought

At last he perceived the outline of the old hovel, among the gorse and broom, and the next moment he stopped suddenly, for there, as he had been told, a thread of bright light came streaming through the shutters of the small window. He drew his lantern under his cloak, and approached cautiously. The road where he stood was now dim, but by the faint glimmer of the stars he was able to make out that there were several persons standing under the eaves, and apparently whispering together

The Vicar's good old heart was filled with surprise and sorrow Then it suddenly grew hot with anger, and throwing aside his cloak and lifting up the lantern he advanced boldly to confront the intruders. But they were not at all alarmed, and they did not make any attempt to escape him. Then, as the light fell upon their forms and faces, who but the Vicar was struck with awe and amazement, and stood gazing as still as a stone!

The people under the eaves were men of another age and another world, strangely clothed in long garments, and majestic in appearance One carried a lance, and another a pilgrim's staff, and a third a battle-axe; but the most imposing stood near the door of the hut, and in his hand he held two large keys. (There is a blackboard sketch of a pilgrim on page 225)

In an instant the Vicar had guessed who they were, and had uncovered his head and fallen on his knees, but the strangers melted slowly away into the darkness, as if they had been no more than the images of a dream And indeed the Vicar might have thought that he really had been dreaming but for the light which continued to stream through the chink in the shutter.

He arose from his knees and moved towards the window to peep into the hut. Instantly an invisible hand stretched a naked sword across his path, and a low deep voice spoke to him in solemn warning:

"It is the light of Angels Do not look; blindness will fall upon you, even as it fell upon me on the Damascus road"

But the aged Vicar laid his hand on the sword, and tried to move it away

"Let me look, let me look!" he said, "better one glimpse of the Angels than a thousand years of earthly sight."

Then the sword yielded to his touch and vanished into air, and the old priest leaned

forward on the window sill and gazed through the chink. And with a cry of joy, he saw a corner of the rude bed, and beside the corner, one above the other, three great dazzling wings, they were the left-hand side wings of one of the Angels at the foot of the bed.

Then all was deep darkness

The Vicar thought that it was the blindness that had fallen upon him, but the only regret he felt was that the vision had vanished so quickly Then, as he turned away, he found that not only had he not lost his sight, but that he could now see with a marvellous clearness He saw the road, and even the footprints and grains of sand on the road; the hut, and the reeds on the hut; the moor, and the boulders, and the rowan trees on the moor Everything was as distinct as if it had been—not daylight, but as if the air were of the clear colour of a nut-brown brook in summer.

Praising God for all His goodness he returned home, and as he went he looked back once and again and yet again, and each time he saw the twelve awful figures in strange clothing, guarding the lonely thatched hovel on the edge of the moor.

After this there were no more stories told of Mary, and no one even dared speak to her of the wonderful manner in which her prayer was answered, so that she never knew what the old Vicar had seen. But late at night people would rather go a great way round than take the road which passed by her poor hut.

FROM THE STORY

NOTE ON THE APOSTLES —*The Apostles were the twelve men whom Jesus Christ called to be His special companions during His life on earth and to carry on His work after He left. We are told in this story that the Vicar saw them dressed in the long robes that men wore in the days when the Apostles lived The Apostle who carried the keys stands for St. Peter, to whom Christ said he gave the keys of heaven and of hell. The one who carried the lance probably stands for St Matthias, and he who carried the battle-axe, St Matthew, for we think that these two men were killed by these weapons St. James is often pictured holding a pilgrim's staff, for in the Middle Ages many pilgrims used to travel long distances to visit his shrine.*

The low, deep voice which spoke to warn the Vicar was that of St Paul, who was specially chosen after Christ had left the earth to be numbered with the Apostles. Paul was a Jew who greatly hated and persecuted the Christians One day, when Paul was travelling to the city of Damascus to take prisoner all the Christians he could find there, a great blinding light fell upon him, and Christ spoke to him, calling him to His service. Paul was stricken with blindness for many days, and afterwards became one of the foremost of the Apostles St Paul was finally beheaded by the sword and it is for this reason he is often pictured as holding " a naked sword."

1. **Do you know?**—In what ways is a moor like a meadow? In what ways is a moor unlike a meadow? What colour are the flowers of the broom? What colour are the flowers of the whin? How tall does bracken grow? For what is a spinning wheel used? What wild creatures in fur or feathers live on moors? Where are the eaves of a house? How did highwaymen spend their lives? How did smugglers spend their lives?

2. **Put in the describing-words.**—The wind, when it blew in the dark, was full of strange and —— noises She was as sweet and unexpected as the white flowers on the —— and rugged branches of the blackthorn. It was quite certain that the girl who seemed so simple and —— was not quite so good as the neighbours had imagined. Then, as he turned away, he found that not only had he not lost his sight, but that he could now see with a —— clearness. Each time he saw the twelve awful figures in strange clothing, guarding the —— thatched hovel on the edge of the moor

3. Tell me.—How did it come about that Mary was left alone in the world? Name all the things that Mary possessed Repeat the rhyme that Mary said every night Why had Mary not been taught anything more than this rhyme? What did the village people begin to say about her? Why did the Vicar go out late one night? Whom did the Vicar suspect the persons to be when he saw them from a distance? Whom did the Vicar guess the persons to be when the light fell on their forms? How did these people come to be there? Why did the Vicar praise God for His goodness as he went home? How was it that Mary never knew what the old Vicar had seen?

4. Marked passage.—Read the passage on page 219 and then think about it with the help of these questions —

At last he perceived the outline of the old hovel, among the gorse and broom, and the next moment he stopped suddenly, for there, as he had been told, a thread of bright light came streaming through the shutters of the small window

Think of another word for *perceived* Why is it written *the old hovel* and not *an old hovel*? Think of another word for *hovel* Why could he see only the *outline* of it? What is the chief difference between gorse and broom? Which word describes how *he stopped*? What place is meant by *there*? Why is the bright light called a *thread*? Could the light actually stream *through* the shutters? Think of a truer word to use instead of *through*. What kind of a house has shutters? What is the use of shutters? Which word describes the *window*?

He drew his lantern under his cloak, and approached cautiously

Do men to-day wear cloaks? Why did he draw his lantern under his cloak? Say *approached cautiously* in different words. Why was he cautious?

The road where he stood was now dim, but by the faint glimmer of the stars he was able to make out that there were several persons standing under the eaves, and apparently whispering together.

Why was the road *now dim*? Why had it not been dim before? Was it really the *road* that was dim? Say *faint glimmer* in different words Why are the people he saw spoken of as *persons* and not as *men* or *women*? How do you think the persons must have been standing so that they appeared to him to be whispering together? Why would the Vicar think that they were whispering? Do you think they were really whispering? What are the eaves of a house?

The Vicar's good old heart was filled with surprise and sorrow.

Why is *Vicar* written with a capital *V*? Which words describe the *Vicar's heart*? Why was the Vicar surprised? Why was he sorry? Say *the Vicar's good old heart* in the form without the lifted comma.

Then it suddenly grew hot with anger, and throwing aside his cloak and lifting up the lantern he advanced boldly to confront the intruders

What is meant by *it*? With whom do you think he felt angry? Think of other words for *throwing aside*, *lifting up*. Which word tells you how *he advanced*? Does confront mean *meet* or *turn away from*? Who is meant by the *intruders*?

But they were not at all alarmed, and they did not make any attempt to escape him

Who is meant by *they*? Think of another word for *alarmed* Did the Vicar expect them to be alarmed? Say more simply: *did not make any attempt*.

Then, as the light fell upon their forms and faces, who but the Vicar was struck with awe and amazement, and stood gazing as still as a stone!

What *light* was this? Which word tells you to whom the *forms and faces* belonged? Whom did the Vicar expect to be *struck with awe and amazement*? Say in different words *struck with awe and amazement*. Why is the mark ! used?

5. Sentence making.—Make two sentences telling what Mary could see from the doorway of her hut. Make four sentences telling how Mary spent her time each day, until the time she was safely in bed. Make three sentences describing what the Vicar saw when he raised his lantern to look at the people by Mary's door. Make a sentence telling why the Vicar wished to look through the chink in the shutters even at the risk of going blind.

THE FIRE QUEST

THE Wise Poet sat reading by the light of his taper. It was a night of the seventh month. The cicala sang in the flower of the pomegranate, the frog sang by the pond. The moon was out and all the stars, the air was heavy and sweet-scented. But the Poet was not happy, for moths came by the score to the light of his taper, not moths only, but cockchafers and dragon flies with their wings rainbow-tinted. One and all they came upon the Fire Quest; one and all they burned their bright wings in the flame and so died. And the Poet was grieved.

"Little harmless children of the night," he said, "why will you still fly upon the Fire Quest? Never, never can you attain, yet you strive and die. Foolish ones, have you never heard the story of the Firefly Queen?"

The moths and the cockchafers and the dragon flies fluttered about the taper and paid him no heed.

"They have never heard it," said the Poet; "yet it is old enough. Listen:

"The Firefly Queen was the brightest and most beautiful of small things that fly She dwelt in the heart of a rosy lotus The lotus grew on a still lake, and it swayed to and fro upon the lake's bosom while the Firefly Queen slept within. It was like the reflection of a star in the water

" You must know, oh little children of the night, that the Firefly Queen had many suitors. Moths and cockchafers and dragon flies innumerable flew to the lotus on the lake. And their hearts were filled with passionate love 'Have pity, have pity,' they cried, 'Queen of the Fireflies, Bright Light of the Lake' But the Firefly Queen sat and smiled and shone. It seemed that she was not sensible of the incense of love that arose about her.

"At last she said, 'Oh, you lovers, one and all, what make you here idly, cumbering my lotus house? Prove your love, if you love me indeed Go, you lovers, and bring me fire, and then I will answer'

"Then, oh little children of the night, there was a swift whirr of wings, for the moths and the cockchafers and the dragon flies innumerable swiftly departed upon the Fire Quest But the Firefly Queen laughed. Afterwards I will tell you the reason of her laughter.

"So the lovers flew here and there in the still night, taking with them their desire They found lighted lattices ajar and entered forthwith In one chamber there was a girl who took a love-letter from her pillow and read it in tears, by the light of a taper In another a woman sat holding the light close to a mirror, where she looked and painted her face A great white moth put out the trembling candle flame with his wings

"'Alack! I am afraid,' shrieked the woman, 'the horrible dark!'

"In another place there lay a man dying. He said, 'For pity's sake light me the lamp, for the black night falls.'

"'We have lighted it,' they said, 'long since. It is close beside you, and a legion of moths and dragon flies flutter about it'

"'I cannot see anything at all,' murmured the man

"But those that flew on the Fire Quest burnt their frail wings in the fire. In the morning they lay dead by the hundred and were swept away and forgotten.

"The Firefly Queen was safe in her lotus bower with her beloved, who was as bright as she, for he was a great lord of the Fireflies No need had he to go upon the Fire Quest He carried the living flame beneath his wings.

"Thus the Firefly Queen deceived her lovers, and therefore she laughed when she sent them from her on a vain adventure

"Be not deceived," cried the Wise Poet, "oh, little children of the night. The Firefly Queen is always the same. Give over the Fire Quest"

But the moths and the cockchafers and the dragon flies paid no heed to the words of the Wise Poet. Still they fluttered about his taper, and they burnt their bright wings in the flame and so died

Presently the Poet blew out the light "I must needs sit in the dark," he said, "it is the only way."

FROM THE STORY

1. Do you know?—What is the meaning of the word *quest*? What is another name for a taper? What is the seventh month? For what is the fruit of the pomegranate used? What noise does a frog make? How many is a score? How big is a cockchafer? What colour is a dragon fly? What

POMEGRANATE

other flower besides the lotus grows on water? What other creature besides the firefly gives out a little light? What is a legion? (There are blackboard sketches of a firefly, cockchafer and cicala on page 225.)

Put in the action-words.—One and all they —— their bright wings in the flame and so died. The moths and the cockchafers and the dragon flies —— about the taper and paid him no heed. The lotus grew on a still lake, and it —— to and fro on the lake's bosom In the morning they lay dead by the hundred and were —— away and forgotten. Thus the Firefly Queen —— her lovers, and therefore she laughed when she sent them from her on a vain adventure Presently the Poet —— out the light.

3. Tell me.—Do you think this story is written about England? What was the Poet doing? Why was he not happy? Why did he tell the story of the Firefly Queen? Where did the Firefly Queen live? Why did many flying insects go to her? Why did the Firefly Queen send them back to look for fire? Was the Firefly Queen kind or cruel? Where did the suitors go to look for fire? Why could the dying man not see the light? What happened to the suitors? Was the Queen sorry for them? Why did the lord of the Fireflies not also go on the Fire Quest? Why did the Poet blow out the light?

4. Marked passage.—Read the passage on page 223 and then think about it with the help of these questions.

"You must know, oh little children of the night, that the Firefly Queen had many suitors.

Why are the inverted commas " used? Who is speaking? Who is meant by *You*? Why is the name *little children of the night* given? Why are the words *Firefly Queen* written with capital letters? What is a *suitor*?

Moths and cockchafers and dragon flies innumerable flew to the lotus on the lake

Were the moths, cockchafers and dragon flies the suitors? Does *innumerable* mean *able to be counted* or *not able to be counted*? Why did they go to the lotus?

And their hearts were filled with passionate love

Whom did they love? Why did the Poet not say quite simply *They loved her*?—Which of these sentences would you use if you were telling the story?

'Have pity, have pity,' they cried, 'Queen of the Fireflies, Bright Light of the Lake'

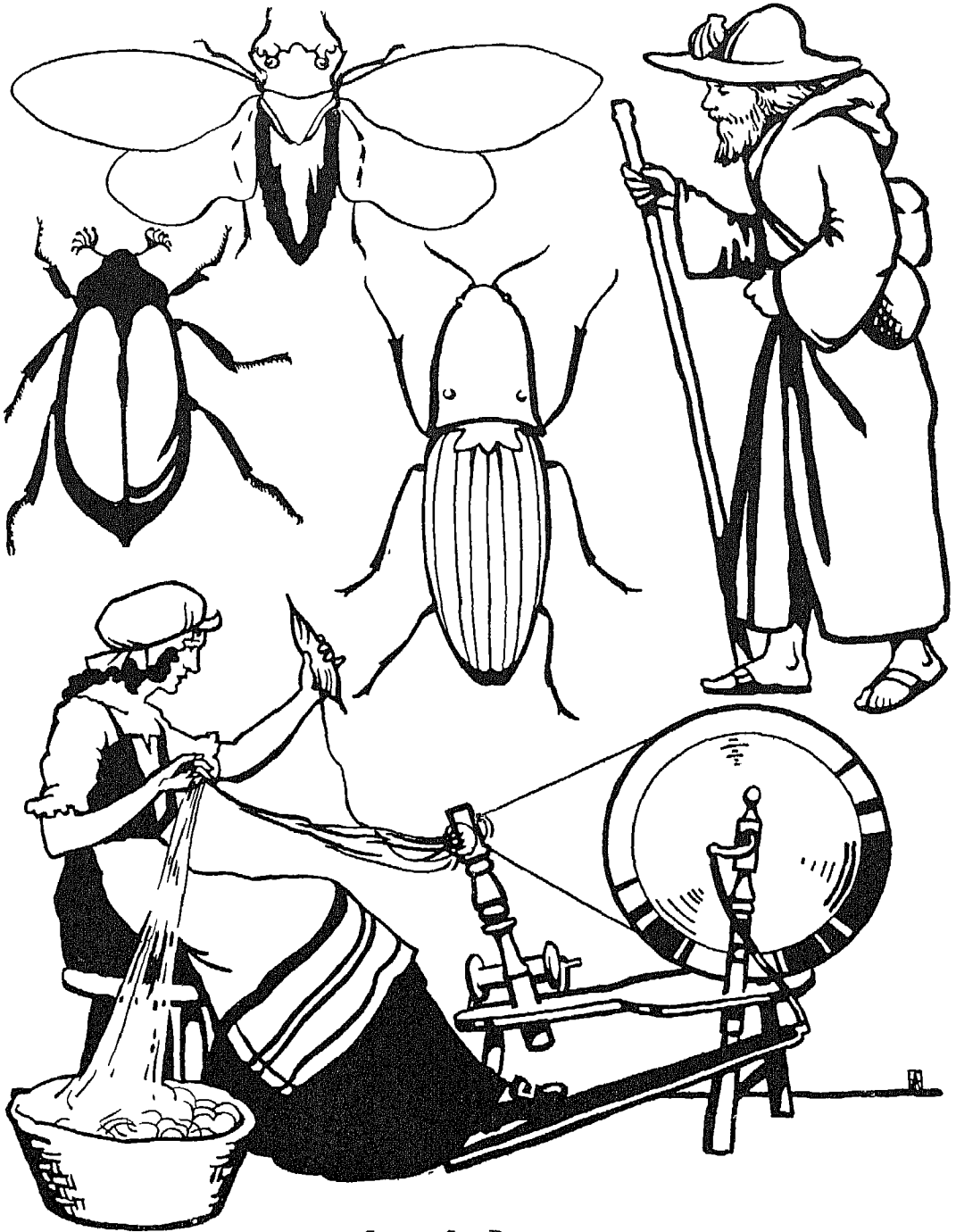
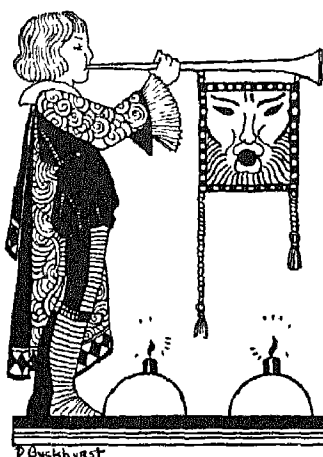
Why are the single inverted commas ' ' used here instead of double ones " "? Who is meant by *they*? What do you think the Queen might have done if she had had pity on them? Did she love any of them? Why are the words *Bright Light of the Lake* written in capital letters?

But the Firefly Queen sat and smiled and shone.

What is alike in the words *sat, smiled* and *shone*? How was it that she *shone*? Do you think that it was kind of the Queen only to sit and smile and shine?

It seemed that she was not sensible of the incense of love that arose about her.

What does *sensible* mean here? What does the word *sensible* mean in this sentence· My sister is both clever and sensible? What is incense? Where is incense often used? Why would incense *arise*, and not *fall*, or *float*? Does this mean that the suitors really burnt incense to her? Which two words mean the *Firefly Queen*? Do you think that the Queen really did not notice the suitors who came to her?

5. Sentence making.—Make a sentence describing the Firefly Queen. Tell in three sentences how the Firefly Queen sent the flying insects on the Fire Quest

COCKCHAFER—SEE PAGE 222
CICALA—SEE PAGE 222
FIREFLY—SEE PAGE 222
SPINNING WHEEL—SEE PAGE 218
PILGRIM—SEE PAGE 219

FIVE SIMPLE PLAYS FOR THE THIRD YEAR'S COURSE

S.O.S.

People in the play.—KENNETH. AUDREY. ROGER MRS BAGGS HILARY SMITH (a boy dressed in a girl's gym tunic and béret) CAPTAIN HALLIARD A VOICE (to represent the wireless)

Things wanted in the play—A box with a movable knob to represent a home-made wireless set A tray of tea things Some lesson books, with pens, ink and paper.

Scene—A comfortable sitting room.

[*Kenneth and Audrey are doing homework at the table Kenneth is muttering, and Audrey is counting on her fingers. Roger is fidgeting with the wireless set in one corner*]

Voice. Whee-ee-ee. . . .

Kenneth Oh, put a sock in it!

Roger. But I want to listen to the Children's Hour.

Kenneth I daresay you do, but we have got to do homework

Audrey I am sorry, Roger, but I can't do arithmetic while Uncle Ajax is reading about Fanny and the Fairies.

Voice Whee-ee-ee. . . .

Kenneth Oh, *will* you shut up, or must I chuck a book at the beastly thing?

Roger It is not a beastly thing! It is a jolly fine set . . . better than you could make, anyway!

Kenneth Well, I have got some work to do, so you can just keep quiet.

Roger You are a selfish pig!

Kenneth I am not! I am an industrious apprentice . I mean scholar

Audrey You are a chattering ape I have done this sum three times, and the answer is different every time. What are six nines, Ken?

Kenneth. Ninety-five . or something

Audrey They can't be . Oh, what a fag homework is!

Roger What is the good of my making a wireless set if no one listens to it?

Kenneth (*putting his hands over his ears*). Well, turn it on then!

[*Roger turns on the set*]

Voice. Many happy returns of the day to Alice Jones.

Roger. Oh, bother! We have missed all the fun . . . They have started birthdays

Audrey Well, it isn't any of our birthdays, so you can turn it off. Cheers! . Oh, dear, I do hope Father will get home in time for mine!

Roger. He is always away for mine.

Audrey. That is the worst of having a father who goes to sea

Kenneth. Look here! Do you realise that if I can't get a little peace I shall never be able to pass my beastly exam, and if I can't pass the exam, I can't go to sea?

Roger. It does seem rather silly to have to mug up a lot of Latin when you are going to be a sailor

Kenneth. It doesn't just *seem* silly, it *is*. But I suppose one must have maths if one is going to navigate a ship.

Audrey. What you would really like, Ken, would be a skull and crossbones, and then you could go sailing about bagging other people's pieces of eight, and making any math master you captured walk the plank!

Kenneth. You do talk rot, Audrey!

Voice Whee-ee-ee . .

Audrey. Oh, don't make it squeal, Roger!

Voice Ter-ter-ter . .

Kenneth It is a rotten set. First it squeals, then it ticks . .

Roger. That is Morse It might be a ship in distress.

Audrey Oh, don't talk about such things.

Kenneth Well, Father says that Morse has saved many a good ship.

Audrey You don't seem to be doing much work, Ken Captain Cook will sail without you if you are not careful.

Kenneth. How can I work with two gabbling idiots and a wireless set in the room?

Audrey. I don't gabble . . and you are the idiot!

[*Kenneth throws a cushion at her*]

Roger. Oh, do stop that frightful row. . . I am just getting Budapesth

Audrey Isn't there anything else on?

Kenneth Yes, we might as well hear English if we *must* listen.

Roger There is a talk on growing artichokes .

[*Audrey and Kenneth groan*]

Oh, it is just over here is the news. . . I say, listen

Voice I have here an S O S Missing from his home at River House, Carsdale, since the 7th of November last, Hilary Smith, aged 12 years, height 4 feet 10 inches, hair brown, grey eyes, snub nose, and freckles . . . wearing a grey flannel suit, light-coloured mackintosh, grey and blue socks, and rubber-soled shoes . was last seen walking through the fields near Carsdale station. Any person able to give information as to his whereabouts is asked to communicate with the Chief Constable, Tel 5009 Carsdale, or with any other police station

Kenneth. I say, somebody has been pretty clever! Disappeared since the 7th of November last . . That is a jolly long time to elude pursuit

Roger The sleuth-hounds of Carsdale must be a poor lot.

Audrey But what an awful thing to do! His people must be terribly anxious about him

Roger. Perhaps it is not his fault Perhaps he has been kidnapped.

Audrey. Why, you don't suppose he met a gang of pirates on the way to the station, do you?

Kenneth Sorry about your brain, Audrey Too much arithmetic seems to have had a bad effect on it.

Audrey Of course he might have fallen into a disused quarry

Kenneth He would have been spotted by now.

Roger Or into a lonely lake . .

Kenneth Or down a rabbit hole . . . or up in a balloon . . . try again!

Audrey. Well, something must have happened to the poor boy.

[*Running footsteps are heard Enter Mrs. Baggs, out of breath*]

Kenneth Hello! Something is the matter with Mrs Baggs

Mrs Baggs Eh, dear! . Let me sit down . . . I've had such a fright . . I'm all of a quiver

Audrey What is it, Mrs Baggs?

Mrs Baggs. There is something queer in my woodshed . What it is I don't know . . . but it sounds like a ghost!

Kenneth But it can't be!

Mrs. Baggs And why can't it be? It moaned at me . . . something 'orrible.

Kenneth. I will go and see what it is.

[*He runs out, followed by Roger*]

Mrs Baggs I am not used to being moaned at, and it 'as upset me!

Audrey Perhaps it is a cat or an owl

Mrs. Baggs That it was not! Eh, dear! How am I to cook the supper with a ghost in the woodshed?

Audrey But it could not be a ghost

[*Enter Kenneth and Roger with a tall girl in a béret They hold her by the arms*]

Kenneth Here is your ghost, Mrs. Baggs

Mrs Baggs Well, I never did! And what were you doing in my woodshed, young lady?

Audrey I hope your soup is not boiling over, Mrs Baggs.

Mrs Baggs. Lawks! I had forgotten all about it!

[*Mrs Baggs waddles out*]

Hilary. Let go of my arms!

Kenneth Well, perhaps you wouldn't mind telling us who you are, and what you were doing in the woodshed.

Hilary I lost my way, and I was tired, and it looked comfortable

Kenneth. But where do you want to go to?

Hilary. The sea

Kenneth. Well, you are nearly there It is just at the end of the road.

Hilary. Really? . . . I say, are those biscuits? I am frightfully hungry.

Audrey. Have one

[*Hilary crams three into her mouth*]

Hilary I could eat a couple of pounds, and still feel empty. You see, my food gave out two days ago, and my money fell through a hole in my pocket.

Kenneth What do you mean?

Audrey. What is your name?

Roger. Where do you come from?

Hilary. You mind your own businesses!

Audrey. Have another biscuit

Hilary (*with her mouth full*). Sorry, but you see . .

Kenneth. I tell you what, I believe you have been sent to spy out the land . . . our land . .

Hilary What do you mean?

Kenneth . . by a gang of burglars . . . and you hid in the woodshed so as to nip into the house after dark, and open a door for them.

Hilary. You think I am a burglar?

Kenneth. I do.

Hilary Well, *that* is what I think of you!

[*Hilary hits Kenneth on the jaw.*]

Roger Here, I say!

Kenneth. You are the roughest girl I have ever met!

Hilary Girl! . . Oh, yes, of course

Audrey. Ken Roger . . Come here! (*Whispering*) Listen . I don't believe it is a girl

Kenneth. What!

Audrey. No Girls don't stand like that, or hit like that

Roger. Then what . . . ?

Audrey I believe it is Hilary Smith of Carsdale in disguise

Kenneth Snub nose . . freckles . . . I believe you are right!

Hilary What is that?

Kenneth. . . . or any other police station . . I am off to get P C. Dobson.

Hilary. No, you don't.

[*Hilary jumps at Kenneth They go down and roll Audrey and Roger separate them Hilary's béret has fallen off He is certainly a boy*]

Hilary What right have you to interfere? . . . How do you know anything about me?

Roger Your description was broadcast

Audrey I say, do have another biscuit . . . You must be awfully hungry

Roger. What are you doing it for?

Kenneth. And where did you get those clothes?

Hilary. I swopped with my sister . . . and . . Well, I am running away to sea if you want to know.

All. To sea!

Hilary. Yes, I got fed up with school, and I thought I would tramp to the coast, and get a berth as ship's boy. I know quite a lot about the sea.

Kenneth Do you? . . Have you passed any exams ?

Hilary. No, and I don't mean to.

Audrey Our father is a sea captain

Kenneth The *Mercia*. Due into Southampton on the 15th I am going to sea with father as soon as I have passed my exams

Hilary Do you think he would take me too?

Kenneth Not in those clothes!

[*A loud knocking at the door*]

Roger. There is someone at the front door

Audrey I'll go and see who it is

Roger No, don't, Audrey. It might be the police

Hilary Oh, golly!

Kenneth Why should it be?

Audrey Perhaps someone saw her . . I mean him . . . climbing into the wood-shed.

Roger They will haul him off to jail!

Hilary. They will take me back to school, and I shall never get to sea! Can't I hide somewhere?

[*More knocking, louder this time*]

Audrey In the attic There is a cupboard with trunks in it behind the door. Oh, do hurry!

[*Heavy footsteps are heard*]

Kenneth. I say, buck up! He is coming!

[*The door handle rattles*]

Audrey Oh, it is too late!

Kenneth Quick! Under the table!

[*Hilary dives under the table, as the door opens, and a head is poked into the room*]

Captain Halliard. Anyone at home?

All Father!

[*They rush at him*]

Captain Halliard Well . . . well . . well! What a lot of tiger cubs! Don't eat me!

Kenneth. We thought you were not coming home for days!

Roger I have made a wireless set, Father!

Audrey It is my birthday to-morrow, and you can cut the cake, Father!

All Hooray!

[*They drag the Captain to the table*]

Captain Halliard. Now, line up, and let me look at you . . . My hat! How you have grown! And what about tea? I am as hungry as a shark

Audrey I will get it, Father

[*Audrey runs out of the room*]

Roger Did you see any cannibals, Father?

Kenneth Or shoot any Polar bears?

Captain Halliard. All in good time, my hearties . . . Tea first

[*He sits down to the table, sees Hilary's foot, and grabs it*]

Captain Halliard Hullo! What is this? A burglar?

Kenneth It is a visitor

Captain Halliard. Come out and show yourself, young man

[*Hilary scrambles out*]

Or should I say, young lady?

Hilary My name is Hilary Smith, sir.

Kenneth . . height four feet ten inches . . .

Roger . . brown hair, grey eyes, snub nose, and freckles .

Kenneth . . . wearing grey flannel suit, er . . light-coloured mackintosh . . .

Both together . . last seen walking towards the station.

Captain Halliard. Here! Here! What is all this? What are you talking about? Have you been borrowing my daughter's gym. tunic, Mr Hilary Smith?

Hilary I want to go to sea, sir. . . . Will you have me for a cabin boy?

Kenneth He is frightfully keen, Father.

Roger. Oh, do, Father! And let me come too, and be your wireless officer!

Captain Halliard. Stop a minute! What about a little growing up first?

Roger. But there is no time, Father The police are after him!

Kenneth You silly ass!

Captain Halliard Police! Why?

Hilary Because I have run away from school

Captain Halliard. Run away! A deserter! . Then there is no room on my ship for you . . The black hole is the place for you, my boy . unless you prefer to meet the cat-o'-nine-tails

Kenneth Oh, don't be angry, Father He is so keen

Roger. And so hungry!

Captain Halliard That is no way to go to sea in these days Parents frantic! Police after you!

Hilary I would swab the decks, sir, peel potatoes, do anything!

Captain Halliard Well, there are two things that can be done Either I send for the police . . or you ring up your people, and let them know that you are safe, and mean to come home. Then we will see about this going to sea.

Hilary I will ring up, sir

Captain Halliard And then come back, and have a real shore-going tea with plenty of buns and jam.

[*Hilary runs out, led by Kenneth*]

Roger. Come and look at my wireless, Father

Captain Halliard. A very good effort, Roger You will be my wireless officer some day, and the other two my mates

Roger We heard the S O S for Hilary on this, or we should never have known who he was.

[*In comes Audrey with the tea*]

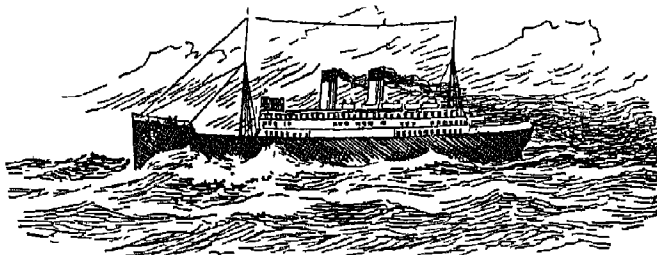
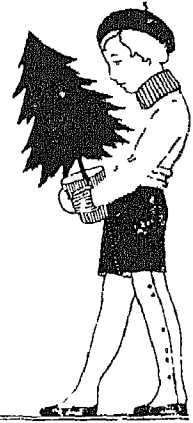
Audrey. Tea is ready, Father

[*In come Hilary and Kenneth*]

Captain Halliard. Come along, a sailor's tea with Grace Darling to pour out . . Now what shall I talk about? Flying fish, volcanoes . . or an S O S that reached me in mid-Atlantic? . What does Miss Smith say?

Hilary The S O S please.

All. S O S. . . S O S

Captain Halliard Well, it was a pitch-black night, with next door to a hurricane blowing . when we picked up the signal, altered our course, and set off full steam ahead . .

A CHRISTMAS TREE FOR SIXPENCE

People in the play —ANDREW KATE PETER AND PRUE (twins) MR MAGGETS MRS PRINGLE P C DOBSON

Things wanted in the play —A toy fir tree in a pot, with some silver paper money hidden among the branches A flashlight A red book A box of soldiers A ball of string A bottle. Six pennies Holly, and a small piece of mistletoe Christmas decorations

Scene —A sitting room on Christmas Eve.

[*Kate is hanging up holly and decorations The twins are helping her*]

Peter and Prue Where are we . . . ?

Peter Your turn

Prue All right Where are we going to put the mistletoe?

Kate Well, it is such a very little piece, perhaps we should hang it over the door

Peter and Prue I wish we had . .

Prue Your turn

Peter Right you are I wish we had a Christmas tree

Kate Mother says we can't afford one this year Times are bad, and if we hang up our stockings it is enough

Peter and Prue We would love a Christmas tree.

Kate You must not mind, twins We can have heaps of fun without one

Peter I hope I get some soldiers in my stocking

Prue I hope I get a flashlight in my stocking

Kate And I do want the Red Fairy Book. I saw it in Mrs Pringle's shop window weeks ago But mother says Father Christmas is hard up too this year, so we must not wish for too much.

[*In comes Andrew with a tiny Christmas tree in his arms*]

Andrew. Look here! There is a man outside who says that we can have this for sixpence It is the last tree he has got. I have twopence

Kate. So have I.

Peter and Prue And we each have a penny.

[*Andrew collects the pennies.*]

Andrew I will go and give it to him

Peter. What a dear . .

Prue. . . . little tree!

Kate I am so glad we have got a Christmas tree after all

[*Andrew comes back*]

Andrew It is very tiny, but it is better than nothing, isn't it?

All Oh, ratherr!

[*A knock at the door*]

A voice May I come in?

Kate. Oh, do, Mr Maggets

[*In comes Mr Maggets, who is the man from Next Door*]

Mr. Maggets I have come to the end of my string, and I have so many parcels to

tie up still. I wondered if you would lend me some of yours.

Andrew. Yes, of course, Mr. Maggets

Mr Maggets That is very kind of you. Dear me. How busy you are! And how pretty it will be!

Peter. Look at our . . .

Prue Look at our . . .

[*They stop, and glare at each other*]

Peter and Prue. My turn!

Mr Maggets Now—now—now! Take a deep breath, and count ten. It does not do to quarrel on Christmas Eve

Peter and Prue. . . . our Christmas tree.

Andrew. It is a very little tree We cannot afford a big one.

Mr. Maggets. It is a very nice tree Dress it up in tinsel with a star on top, and it won't know itself

Kate. Here is your string, Mr Maggets.

Mr. Maggets Thank you, Miss Katie And here is a penny to pay for it.

Kate. Oh, but . . .

Mr. Maggets Fair is fair, and money is money any day of the week, especially on Christmas Eve.

Andrew. I wish we had a little more money! There is a model fire engine in Mrs Pringle's shop that I want terribly badly

Kate And I *should* like the Red Fairy Book.

Peter and Prue. And we want .

Mr Maggets. What a lot of wants!

Kate But now that we have bought the Christmas tree we have no money left, and mother says that Father Christmas is poor too this year

Mr. Maggets Come, this is all very sad. Let me help you with your decorations. A bit of holly cheers one up wonderfully. Have you any candles for the tree?

Kate. We have nothing for the tree

Mr Maggets Tut—tut! What is the good of a tree with nothing on it? We might make some snowballs with cotton wool.

[*Mr. Maggets bends over the tree*]

But why! Good gracious me! What have we got here? Well, I declare!

All. What is it, Mr. Maggets?

Mr Maggets. Why! Well—well—well! After all these years! How very lucky for you! Do you know what kind of tree this is?

All. No.

Mr Maggets It is a money tree! And a very fine one.

Andrew But what is a money tree, Mr. Maggets?

Mr. Maggets Do you mean to say you don't know? To be sure one does not often see them nowadays. They are very rare. I do not suppose that the man who sold you this knew what it really was, or he would never have let you buy it for sixpence

Kate. It does not look very special, Mr. Maggets.

Mr. Maggets. Aha! But you put it in the sunshine for a while, and water it with tear water, and then see what happens!

Andrew But we have not got any tear water.

Mr. Maggets. What! Not in this house? Well, that is a good thing in one way, but a little awkward too. Money trees must have tear water And you must dust the leaves with a clean handkerchief to keep away the money grubs

Peter and Prue The sun is not shining

Mr. Maggets. Well—well, put it on the window sill Snowshine will do quite well, I daresay I believe I have a little tear water on the top shelf of my store cupboard. I will go and see

[*Mr Maggets goes out*]

Andrew. Get a clean hankie, Kate.

[*Kate dusts the tree*]

Kate It looks quite an ordinary tree

Peter. I wonder why it is called . . .

Prue . . . a money tree!

[*Mr Maggets comes in again*]

Mr Maggets Here you are! Now let me pour some of this over it. It must soak into the roots, you know.

[*Mr Maggets waters the tree*]

Now watch!

[*They all stand round the tree*]

Kate Oh, look! It is sending out little buds

Andrew. No, they are fruits, tiny round fruits

Peter and Prue Like . . . like . . .

Kate Why, they are sixpences!

Mr Maggets What did I tell you? A really fine little money tree. If it had sprouted in the sunshine the fruit would have been gold But I think silver will do quite well, don't you?

Andrew Oh, yes! Oh, what a lot! How many shall I need for the fire engine?

Kate Two sixpences make a shilling, so eight will buy the Red Fairy Book.

[*They all pick from the tree*]

Peter. This is the nicest Christmas tree .

Prue . . . that we have ever had!

Kate We shall be back soon.

[*They all go out*]

Mr. Maggets And now what will happen, I wonder? You and I know a secret, don't we, little tree? We shall see!

[*Mr Maggets hangs up holly and sings "Good King Wenceslas" as he works In a few moments Andrew and Kate rush in*]

Kate I have got it, Mr Maggets, and it is full of pictures!

Andrew. And my fire engine is simply splendid! Look . . . in this box

Mr Maggets. Well, I am glad And what presents are you giving to your father and mother?

Kate Oh, I have made mother a pin-cushion, and father a penwiper.

Andrew And I have painted book-markers for both of them

Mr Maggets. How very nice!

[*In come the twins*]

And have you got what you wanted, too?

Peter. Oh, yes, thank you!

Prue Three cheers for the Money Tree!

All. Hip, hip, hurrah!

[*In come Mrs. Pringle and P.C. Dobson*]

P C. Dobson. Excuse me, young ladies and gents, but Mrs Pringle 'as a complaint to make

Andrew. What is it?

Mrs Pringle. You just give me back that book and that fire engine at once! Making game of me like that!

Kate. What do you mean, Mrs. Pringle?

Mrs Pringle Why! I give you beautiful presents out of my shop, and you give me little bits of silver paper that crumples up, and blows away like leaves!

Andrew But we picked it off our Money Tree!

P.C Dobson. I don't know nothing about money trees, but it is quite tiue what the lady says, and it won't do, you know! You must hand them things back.

Andrew Oh, what a shame!

P C Dobson. Come along.

[*Kate hands Mrs Pringle the Fairy Book. Andrew gives the fire engine to P C Dobson*]

Mrs Pringle. And don't play any more of your tricks on me!

[*Mrs Pringle and P C Dobson go out*]

Mr Maggets Well—well—well!

Kate That horrid little tree! I shall throw it into the dustbin!

Mr Maggets Wait a minute. Let us look into the matter You picked some sixpenny pieces off the tree. What did you buy with them?

Andrew We showed you

Mr. Maggets Presents for yourselves! Ah, there you are, you see! That is no way to spend Fairy Silver. It always shrivels up if you spend it on yourselves

Kate. But we wanted the things so frightfully badly!

Mr. Maggets Never mind. It does not do And what about you, twins? You will be getting into trouble next.

Kate Yes, you have got the flashlight, and Peter has the soldiers he wanted

Peter Well, you see, Prue bought the soldiers for me

Prue And Peter gave me the flashlight

Mr. Maggets. Ah! So there is all the difference in the world! If you spend it on

someone else it shines bright and rings true for ever That is the secret of Fairy Silver

Kate Oh, I know mother wants new gloves

Andrew And father would like a new pipe

Mr. Maggets. That is better! That is better!

Kate But we have picked all the fruit!

Mr Maggets You must wait till next year now Save up your tear water, and you will be able to gather as much Fairy Silver as you please

[*Everyone joins hands and dances round the Money Tree singing "Here we go round the Money Tree . All on a Christmas Evening"*]

ROBIN HOOD

People in the play—ROBIN HOOD MAID MARIAN, OLD WOMAN TRAVELLER, LITTLE JOHN FRIAR TUCK SEVERAL CHILDREN.

Things wanted in the play—A bow and arrows Two money bags A horn A sword

Scene—A path leading to Sherwood Forest.

[*An arrow is shot on to the stage Robin follows, bow in hand*]

Robin (looking about him).
Why! If I be not first, my name's not Robin!
Here 'tis the bright May afternoon, and all
Agreed to feast in the greenwood, for to welcome
The bursting May buds I have been a-shooting
The fat, red deer since sunrise, and have raced
Ahead of all my men in Lincoln green.
I shall be first to spread the tempting fare
Beneath the grand old oak, our trysting tree
Hark! Who is this?

[*Enter Maid Marian, singing*]

Upon my life! Maid Marian!
A May Day welcoming to thee, my sweetheart!

[*He grasps both her hands*]

Marian.
O Robin, such a flutter in the bushes!
Come with me, I have found a tiny nest,
With five great mouths a-gaping at me in it,
And busy birds a-flying round with worms

Robin.
This is the feasting time for great and small,
For lo! the sun is trailing to the West,

And all are growing hungry. Let them stay,
And come to sup thyself beneath the oak.

Marian. Thou hast been shooting then?

Robin Ay, seven arrows,
Nor one that missed the mark

Marian Who cometh here?

[*Old Woman trudges in, as if very weary*]

Old Woman (*quavering*)
For love o' God, I prythee, give me bread
Full twenty miles I've wandered, very weary,
And had no roof to shield me from the rain
If thou art Robin Hood thou wilt assist me

Robin
That's a long way for sore old bones to travel
Here, take this coin

[*He opens money bag and gives her money*]

Keep straight on through the woodland,
And thou shalt soon arrive at Nottingham
There thou canst buy a loaf

Old Woman (*curtseying*). I thank thee, Robin

[*Old Woman trudges out Traveller enters, carrying sword*]

Robin Stay, fellow! Who art thou to cross the greenwood?

Traveller A better man than thou

Robin Yield up thy purse!

Traveller By Heav'n! I'll slay thee first!

[*Traveller waves his sword as if to attack. Robin winds his horn three times Little John and Friar Tuck rush in Little John wrests the sword from the Traveller*]

Robin Now cry for mercy, man, and yield thy money

Traveller.
I know thee! Thou art Robin Hood the robber,
That thievest from the rich to help the poor
Take all I have, and let me join thy party
With all thy merry men in Lincoln green

[*He proffers his money bag on bended knee*]

Robin Well said! My hand upon it!

[*Traveller rises. They shake hands*]

Robin. 'Tis accepted

John
Hurrah, bold Robin! (*He pats him on the back*)
Now at last we've found thee!
Friar Tuck and I were making for the oak
When thy three blasts resounded

Robin Little John,
And Friar Tuck, my comrades, many thanks!
We will away together. To the oak!

[*Robin puts his arm round Marian and they turn to go She points in the other direction*]

Marian
Look thither! See the village children coming
To hold their merry May dance in the forest
I prythee, Robin, ask them all to join us.

[*Some of the children enter in groups of two or three, laughing and talking They bear garlands, wreaths and ribbons*]

Children (*in chorus*). Stay! Hear our song of May Day welcome, Robin!

Leader of Children
We've danced a mile to meet thee, Lady Marian,
Still more of us are coming.

[*A few more children run in*]

Leader of Children. Join your hands!

A Child.
Some others still are loit'ring on the road
A-gathering the blossom. Here they come!

[*The rest of the children stroll in*]

Marian.
Welcome to you, ye bonnie village children,
Come to our feast beneath the trysting tree

Children (*in chorus*). O yes! with many thanks!

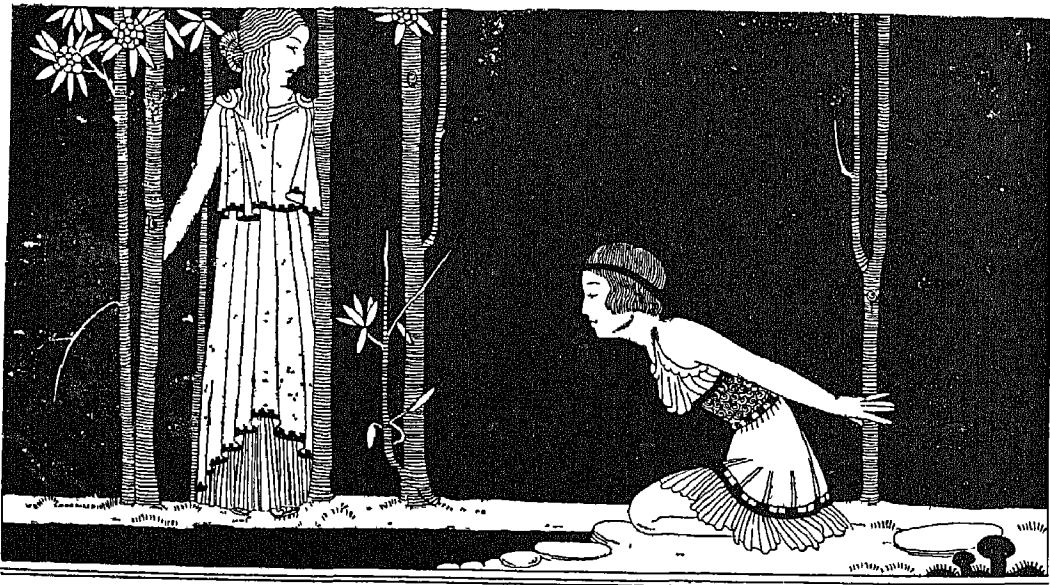
[*Children curtsey*]

Leader of Children
Now join in dancing

[*They dance in a ring round the huntsmen, then close up and sing*]

Come, here's to Robin Hood, of the merriest greenwood,
And a blessing on his name
With his shaft and bow he hath laid the red deer low,
Unperishing shall be his fame.
With a noble mind, to poor folk ever kind,
Robin lives a'neath the greenwood tree,
And when bold Robin's gone, still his heart shall live on,
And we'll bless his name with three times three

Once more our voice we raise, singing gaily to the praise
Of that kind and lovely maid,
Who his life doth share, in the midst of many a care
While he lives an exile in the glade
To his Marian true we raise the song anew,
Let her courage always honoured be;
And when both be gone still their hearts shall live on,
And we'll bless their names with three times three.

[*They troop out*]

ECHO AND NARCISSUS

People in the play—ECHO (a wood nymph) JUNO (queen of the gods). NARCISSUS (a young hunter) VENUS (goddess of love) DRYAD (spirit of a tree) (Only her face can be seen looking out of a tree trunk)

Things wanted in the play—Greek costume for all the actors except the Dryad, whose head alone is seen A large mirror to represent the pool, which is surrounded by cushions covered by green cloth to represent the banks. A cardboard tree trunk with an opening through which the Dryad's face can be seen A spear.

Scene—A woodland glade in which lies a pool

[*Dryad is watching through her tree Echo runs in laughing*]

Dryad You are merry this morning, sister Echo.

Echo. Yes, indeed Such sport I have had!

Dryad No mischief this time, I hope

Echo More mischief than ever before Oh, how angry they were! (*She laughs*) Are you not anxious to come out of your tree and join in the fun?

Dryad No, I am safer and happier where I am. And I am busy too, for the trees are still making new leaves Your pranks will bring anger and sorrow on your

own pretty head one day, Echo, I wonder that Juno keeps you for her hand-maiden. What is it this time?

Echo (*seating herself by the pool*) I will tell you. This morning, as I was brushing Juno's hair, she began to make sport of the other gods. Jupiter, her husband, she called bad-tempered, and she said that Venus, our radiant goddess of love and beauty, was growing old and ugly,—while as for Mars, the war god, she mocked his crooked legs and knock-knees!

Dryad Our queen is foolish to speak so disdainfully.

Echo (*laughing again*). More foolish this time than ever before. For as I left her, whom should I meet but Jupiter her husband coming to visit her. When I told him of her jest he vowed to punish her. And Venus, when she heard the queen's words,—oh, she was too angry to speak! I thought it was more prudent not to speak to the powerful Mars himself, but I whispered the queen's gibe to his messenger, who is more than likely to repeat it to him.

Dryad Senseless girl! You will bitterly repent of your indiscretion. It is no light matter to arouse strife among the gods

Juno (*calling outside*). Echo! Echo!

Echo. That is the voice of my mistress.

Dryad. And there is anger in her tone Hide yourself, Echo!

[*Echo springs up*]

Echo. Too late, she is here

[*Juno enters*]

Juno (*in tones of anger*). Echo!

Echo (*humbly*). Yes, my lady.

Juno. Wretched and untrustworthy girl! Many times have the gods warned me of your perfidy, and yet I kept you in my love. Now for this last offence you shall reap the punishment you deserve. That idle, chattering tongue of yours shall have no power to speak except when you are spoken to.

Echo (*struck with fear*). Oh, my lady!

Juno And your only reply shall be to repeat their last words.

Echo (*gasping*). Their last words!

Juno. You shall have neither home nor shelter, but wander through the hills and valleys, to haunt and mystify the traveller, a warning to all who betray their trust

Echo (*faintly*) Betray their trust!

[*Juno leaves the glade Echo sinks to the ground*]

Dryad. My poor Echo!

Echo (*very faintly, from the ground*) Poor Echo!

Dryad Did I not warn you, Echo? Dear child, it is a heavy punishment Now I can hear other footsteps in the forest. It is Narcissus, your beloved! See, he is coming here Take courage, gentle nymph; I will leave you The gods grant that he may look on your fair face and return your love,—so you shall still find happiness.

Echo (*murmuring, as she raises herself from the ground*) Still find happiness!

[*Dryad disappears Echo partly conceals herself at the back of the stage Narcissus enters, carrying his spear*]

Narcissus Who calls? I was sure that I heard voices.

Echo (*softly*) Heard voices.

Narcissus (*looking about him*) Someone spoke. Will you not speak to me again?

Echo (*more loudly*) Speak to me again.

Narcissus. Come out, come to me. I am here.

Echo. Here.

[*Echo comes towards him When Narcissus sees her he makes a gesture of impatience*]

Narcissus Only a wood nymph! I hoped you were a man who would help me in the chase, for I am following the track of a wounded deer. I have no time to linger. Fare you well!

[*Narcissus strides out*]

Echo (*sorrowfully*). Fare you well.

[*She seats herself by the pool, her face in her hands Dryad reappears*]

Dryad. Do not weep, dear sister. I have caused Narcissus to trip over the roots of my trees, so that he has broken his spear. He cannot continue the chase, and returns

to the pool See, he comes! Hide yourself among the branches of my tree where you may watch him.

[*Echo hides by the tree Narcissus returns*]

Narcissus (*angrily*) Truly the Fates conspire against me! I am baulked at every turn,—my prey lost, my spear broken, and myself I know not where. But here at least is shade, with soft moss for weary limbs, and water for my thirst

[*He goes to the pool and kneels beside it. He drinks out of his hands*]

Blessed water, how cool and sweet! The ripples made by my hands slip away, as if ashamed to disturb the quiet depths of the pool (*He gazes into the water.*) There is a shadow in those depths, and two clear stars like the eyes of my dream maiden.

[*Echo comes slowly towards him Narcissus gazes more fixedly into the water*]

Narcissus. Now the ripples have all sped away . the shadow takes shape . . . it is . . . it is a face, more lovely even than in my dreams. And those stars, they are indeed two eyes, fringed with long lashes, and beautiful beyond expression And so near . . . so near . . . (*He stretches out his hand to the surface of the water.*)

Dryad. It is his own fair face that he sees. Speak to him, Echo, ere he loses his heart to his own shadow

Narcissus. Ah! She is gone . . . No, she returns smiling as before.

[*Echo stands at the other side of the pool looking at him He continues to gaze into the water*]

Narcissus (*to the water*) Lovely maiden speak to me

Echo (*stretching out her arms*). Speak to me

Narcissus. Fairest lady, I love you

Echo (*beseechingly*) I love you

Narcissus. Fair one, be mine

Echo Be mine

Narcissus If you give me no answer I shall know that you love me not.

Echo (*brokenly*). You love me not

Narcissus. If you do not love me, I must die

Echo. I must die.

[*She hides her face in her hands and slowly moves out*]

Narcissus (*still gazing into the pool*) Will you not speak to me? Will you not even smile at me? Why, there are tears in your eyes. Lo, a tear has fallen into the water—how it ripples! My own eyes are so full of tears I can no longer see you. O maiden, maiden, pity me!

[*He falls beside the pool*]

Echo's voice (*faintly*) Pity me!

Dryad (*calling*) Venus! Venus! Goddess of love and beauty, come hither and bring balm to these spirits wounded in thy name Venus!

Echo's voice Venus!

[*Venus enters the glade*]

Venus. Who calls?

Dryad. Fairest of the goddesses, your mercy on this foolish youth and on the maiden who loves him!

Venus Who is this maiden?

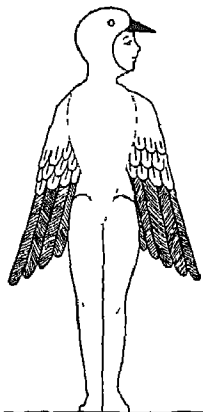
Dryad The broken-hearted Echo, made dumb to any speech but the last few words of another

Venus Echo suffers yet another punishment for her misdeeds, I cannot help her. Her form shall pine away for very sorrow, and all that shall remain of her shall be her voice, which shall live among the barren and rocky places of the earth for ever.

Echo's voice. For ever!

Venus. As for this foolish youth, he is already dead of love for his own fair face (*She casts her mantle over him*) He shall be changed into a flower, so that when men see the white narcissus blossom, they will remember his story and repent them of their own vanity. Farewell!

Dryad (*weeping*) Farewell!

Echo's voice (*very softly*). Farewell!

A MASQUE OF SPRING

People in the play—THE STREAM THE NORTH WIND THE ROBIN THE LARK THE SPRING SEVERAL SNOWDROPS, CROCUSES AND DAFFODILS. OTHER FLOWERS AND BUDS

Scene—A meadow

[*The Stream stands fettered with chains in the centre of the stage The North Wind enters from the right*]

Stream.

Long hast thou kept me chained Oh, set me free,
So that once more my rippling waves may flow
Through meadows green towards the far-off sea
O North Wind! Be not cruel! Let me go!

[*Stream struggles in vain with fetters*]

North Wind.

Not yet; I may not From the Pole I came,
And brought the Winter with the ice and snow;
I raged o'er all the land with icy breath
I chained the streams. I shall for ever blow.

Stream.

Oh, not for ever! There will come a time
When snow shall melt, and flowers shall bloom again,
The sun will shine more brightly and once more
I shall flow on, freed from thy icy chain,
And murmur on my course, no longer dumb
But singing as I go my old refrain

[*Robin enters.*]

Robin (singing)

The wind is cold; the stream is dumb
I can hardly find a crumb.
Yet I sing my little song
For the Spring will come ere long
Winter cold is growing old,
Soon will be on field and tree
Bud and flower and melody

[*Robin withdraws to back of stage.*]

Stream

See high above us in the brightening sky,
Your brother Lark He sings his song Oh, hear!
It is the song of hope, the song of Spring,
The song that heralds in the glorious year.

[*Lark enters*]

Lark (singing)

Earth is clad in the robe of night,
Yet arise!
Ever upward bring thy light
To the skies
Tinge the tips of the clouds with gold,
Glorious sun!
Drive away the mist and cold,
Brightest one!
See, he comes! O'er the sea afar
His bright rim shows
The sun god in his dazzling car
Stronger grows

Lo, he hurls his shafts of light,
Stars must rest;
Before him flees retreating night
To the west.
Shines the earth, the lake, the stream.
Far away,
Night has vanished like a dream,
'Tis the day!

[*Lark withdraws and stands with Robin Enter Snowdrops*]

North Wind Who are ye?

Snowdrops.

Snowdrops we,
Peeping through the snow
Saying the Spring will soon be here
We tell the Winter it is time to go;
The Spring has sent us, and our flowers will cheer
The frozen earth. Here are our sisters. Lo!

[*Snowdrops retire to back Enter Crocuses*]

Crocuses.

Here we come in our colours gay,
White and orange and yellow and blue,
Brightening the gloom of the winter's day,
The message of Spring we are bringing to you

[*Robin comes forward to centre*]

Robin.

Snowdrops peeping through the snow,
Pretty crocus all aglow,
Telling us we shall be free
From cold winter's misery,
With sweetest songs we welcome ye

North Wind

I feel that Spring approaches I must go
Back to my frozen caves
Where the great mountains of ice
Heave on the freezing waves
Of the lonely Polar seas,
Where the fur-clad Eskimo
Hunts the white bear and the seal
And the great whale spouts in the foam
Where the gleams of the Northern Lights
Pierce the gloom of the winter nights
The power of the Spring I feel,
It says I must go home.

[*Enter Spring, with Daffodils and other flowers following her. The North Wind retreats before her*]

Flowers and Buds (*advancing*) Here is the Spring, the beautiful Spring!

Spring (*to North Wind*). Begone! Your reign is over

[*Exit North Wind slowly as Spring advances*]

Flowers and Buds (*singing song of welcome to Spring*).

Flowers of Spring, come greet your Queen!
Bow your head with dewy crown,
Little Snowdrop pure and white,
Crocus shining in the light,
Low bow down
Hail the Spring!

Birds sing out from every tree,
Sing out loud your sweetest song,
Little Robin, whom we love,
Soaring Lark from high above,
Loud and long,
Hail the Spring!

Where her shining feet have trod
Flowers spring up from happy earth
Little songs of joy are heard,
Praise from every blithesome bird,
Joy and mirth
Hail the Spring!

Spring.

Thanks, beauteous flowers and tuneful birds
And now
My task awaits me.
(*To Stream*) You poor chained Stream,
I break your fetters Flow gently, rippling down
Towards the sea You on your way shall pass
By flower-gemmed meadows. Many a little town
With houses clustered round an ancient spire
Will hail with joy your sparkling waters Flow,
Bring joy to all, to man and beast, nor tire,
But broadening ever as you near the sea
Flow slowly, smoothly, deeply, till at last
Great ships may ride upon you from afar,
Their voyage ended, and their perils past.

Stream.

I feel new life within me, and once more
I wind about the flowers, and murmur low,

The reeds wave over me and seem to say,
Farewell, sweet Stream! Joy with you as you go

[*Stream winds among the flowers and goes out*]

Spring

Leaping and laughing down the hills
The Stream has gone. Come, golden daffodils
And pale narcissi, gay anemones,
The purple violets and sweet hyacinth,
With all your varied colours deck the earth
And make it sing aloud for joy to-day

Daffodils (*singing*)

We come! We come! at the call of Spring
To paint the fields with gold and green
The earth is gay with flowers to-day
Which deck the path where Spring has been.

A Voice. Cuckoo! Cuckoo!

Spring

There goes my messenger. His simple cry
Means Spring is coming Now we must away
To lands far north, where still the cold grey sky
Looks down on frozen lands We must not stay,
For sister Summer comes with all her flowers
Go Snowdrops first, and where the snow still lies
Upon the frozen earth, white buds put forth;
Then let the crocus all its bright hues show
To tell them Spring is coming to the North.
Ere we go to lands of snow
Let us sing the song of Spring,
Sing the song and weave the dance.

[*The Snowdrops sing their song, beginning "Snowdrops we," Then the Crocuses: "Here we come in our colours gay!" Then the Daffodils: "We come! we come! at the call of Spring" All the flowers dance and exeunt The Snowdrops go first, then the Crocuses, and last of all, Spring with the Daffodils.*

THIRD YEAR'S COURSE
OF
POETRY

THE PIED PIPER OF HAMELIN

(Class Picture No 154 in the portfolio)

POEMS FOR THE THIRD YEAR'S COURSE

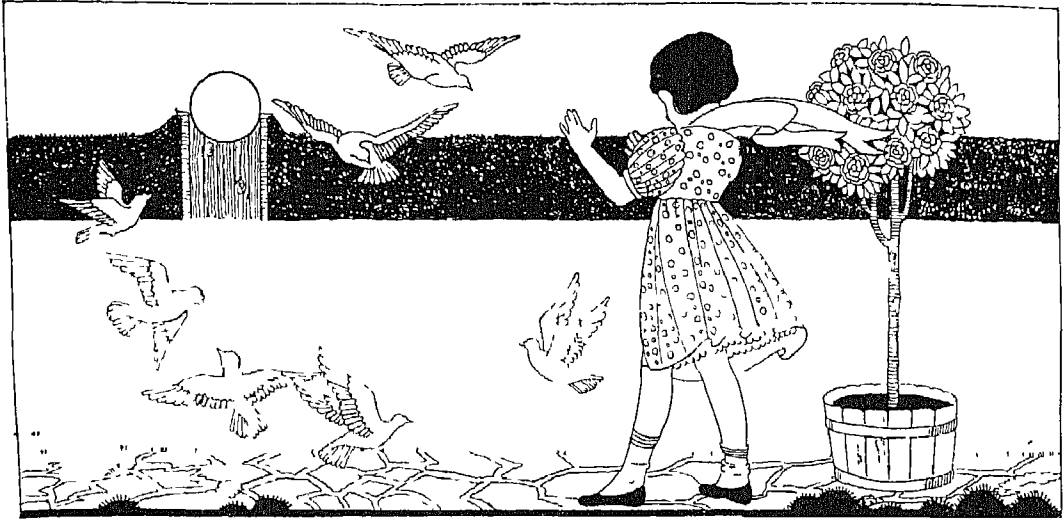
SUGGESTIONS regarding the teaching of poetry and explanations of various poetical terms and devices have been given in the Introductions to the First and Second Years' Courses of Poetry in Volumes I and II. Two additional figures of rhetoric appear in this course—the *metaphor* and *personification*.

Metaphor.—This is an implied comparison, and should not be confused with a simile, in which two objects are definitely compared. For example in the poem "Pigeons" (page 249), the sky is called "a blue cup." The poet does not say that it is *like* a blue cup, he makes no definite comparison. Yet in calling the sky "a blue cup" he suggests or *implies* that it resembles one. Further on in the poem he uses another metaphor—"The shut door of Heaven"—which suggests that the sky is a great, closed palace Stevenson calls a river, "The sky's blue looking-glass."

Personification.—This figure ascribes life to inanimate things In the poem, "Of the Daisies in a Breeze" (page 251), the flowers are spoken of as little people with low voices and round eyes. Mr James Stephens, in "Etched in Frost" (page 264), imagines the mountains as a person with a frowning face, and the winter sun as somebody thin, white and shivering.

Imperfect rhymes.—Rhyme affects the *ear* and not the *eye*. Sight rhymes, such as *harm* and *warm*, *love* and *cove*, are not rhymes at all. On the contrary, *vain* is a true rhyme to *reign*; *dire* to *higher*, *hour* to *flower*. Pronunciation is the test of a rhyme.

The pupils should understand that poets do not plan out fancy methods of writing with which to ornament their work The beautiful lines that they compose flow naturally into their minds It is for us to discover wherein the beauty lies

BIRDS AND FLOWERS

Poets find the world full of beauty, and, to them, not the least fair among its treasures are the birds and flowers. Samuel Taylor Coleridge wrote:

> " Sometimes a-dropping from the sky
> I heard the skylark sing,
> Sometimes all little birds that are,
> How they seemed to fill the sea and air
> With their sweet jargoning!
>
> " And now 'twas like all instruments,
> Now like a lonely flute;
> And now it is an angel's song,
> That makes the heavens be mute."

A poet will often make a study of a bird, as in "Gay Robin" (Volume II, page 221); or he will imitate a bird's song "Here again, here, here, here, happy year!" sings Tennyson's "Throstle" The cuckoo was so named from the sound of its call

Here is a stanza, a very old one, about the Coo of the dove. A *stanza* is the name for each group of lines, four or more, into which a poem is divided A *verse* is properly a line, but the term is in general use for a *stanza.*

> " The dove says, ' Coo, coo, what shall I do?
> I can scarce maintain two '
> ' Pooh, pooh,' says the wren,
> ' I have got ten,
> And keep them all like gentlemen' "

Children are very sensitive to the charm of birds and flowers, and enjoy reading or hearing poems and stories about them. As an introduction to one of the poetry lessons in this section the teacher might tell the pupils the following story of the *Lark and the Daisy*

A lark once made his nest in the long grass of a meadow. Every morning at sunrise he would leave his mate sitting on her eggs and soar up into the sky singing as though his heart would burst with joy From a corner of the meadow near at hand a little daisy watched him She nestled in the centre of a velvety patch of grass, and was never so happy as when listening to the lark's sweet music and seeing him flutter past her on his daily flight upwards to greet the rising sun

One day the lark was caught in a snare. He disappeared for some hours, and to the daisy it seemed as if all the music in the world had ceased, now that she could not listen to his singing amongst the clouds. Presently she heard the well-known song again. It sounded very sad. From where was it coming? At length the daisy saw that the lark was shut up in a tiny cage which hung outside the door of a cottage overlooking the meadow. Often he stopped singing and beat his wings against the bars of the cage, trying in vain to escape to his nest in the grass.

"Oh, if only I could comfort him!" thought the daisy. Alas! she could do nothing.

The boy who had captured the lark put seed in the cage for him to eat, but forgot to give the poor bird any water. On the next day, at noon, the sun poured down on the cage's tin roof, and the lark suffered torments of thirst. That evening, when he drooped, gasping, at the back of the cage, the boy looked in at him.

"I don't think my lark seems very well," he said to his mother.

"Perhaps he would like some grass from the meadow," she suggested.

The boy took a knife and cut out a square patch of turf. He chose it from the very spot where the daisy grew, and carried it off to the cage, leaving her in the centre of it. The daisy was very happy at being able to give the lark a little comfort in his distress. He buried his burning beak in the cool grass around her, and its fresh scent made him forget his captivity. He burst once more into song and with a last, soft trill dropped down dead upon the turf. In the morning the boy found him lying stiff and cold beside the withered daisy.

I. Spring

Spring, the sweet Spring, is the year's pleasant king:
Then blooms each thing, then maids dance in a ring,
Cold doth not sting, the pretty birds do sing,
  Cuckoo, jug-jug, pu-we, to-witta-woo!

The palm and may make country houses gay,
Lambs frisk and play, the shepherds pipe all day,
And we hear aye birds tune this merry lay,
  Cuckoo, jug-jug, pu-we, to-witta-woo!

The fields breathe sweet, the daisies kiss our feet,
Young lovers meet, old wives a-sunning sit,
In every street these tunes our ears do greet,
  Cuckoo, jug-jug, pu-we, to-witta-woo!
    Spring! the sweet Spring!

Thomas Nash

Note.—The writer of this poem lived in the time of Queen Elizabeth, when Shakespeare was composing his famous plays. The poem is full of the stirring life of spring. Maids are dancing, lambs frisking, shepherds piping, young lovers meeting, and, like an orchestra accompanying all, the song of the birds is heard in every stanza—"Cuckoo, jug-jug, pu-we, to-witta-woo!"

Some of the words in the poem, that were commonly used in Elizabethan times, are now unfamiliar.

"*Maids* dance in a ring,
  Cold *doth* not sting, the pretty birds *do sing* . . . . .
  We hear *aye* birds tune this merry lay . . ."

The word *aye* means *always*.

The rhyme scheme is an interesting one. A word in the middle of every line rhymes with the end word—"Spring, the sweet *spring*, is the year's pleasant *king*. Lambs frisk and *play*, the shepherds pipe all *day*." This has a shortening effect on the lines, making one line sound as though it were two, and so the music runs more quickly. It is correct to say, "The fields breathe *sweetly*," but Thomas Nash has used the word "sweet" instead so that it shall fit in with the rhyme scheme. "Sit" is an imperfect rhyme.

The spring *palm* is the name commonly given to willow catkins. They are oval in shape and velvety to the touch. The white blossom of the hawthorn is called *may*.

Why is spring called "the year's pleasant king"? What flowers besides daisies "kiss our feet"? What bird says "to-witta-woo"? How do we know when spring has come? What use is made of "the palm and may"? Write down the "merry lay" that the birds sing. Which words rhyme with "greet," "gay," "sing"? (There are blackboard sketches of *palm* and *may* on page 257).

2 A Bird's Song

I.

I cling and swing
On a branch, or sing
Through the cool clear hush of morning O!

Or fling my wing
On the air, and bring
To sleepier birds a warning O!

That the night's in flight!
And the sun's in sight!
And the dew is the grass adorning O!

And the green leaves swing
As I sing, sing, sing:
Up by the river,
Down the dell
To the little wee nest,
Where the big tree fell,
So early in the morning O!

II

I flit and twit,
In the sun for a bit,
When his light so bright is shining O!

Or sit, and fit
My plumes, or knit
Straw plaits for the nest's nice lining O!

And she, with glee,
Shows unto me,
Underneath her wing reclining O!

And I sing that Peg,
Has an egg, egg, egg!
Up by the oat-field,
Round the mill,
Past the meadow,
Down the hill,
So early in the morning O!

III

I stoop and swoop
On the air, or loop
Through the trees, and then go soaring O!

To group, with a troop,
On the skiey poop,
While the wind behind is roaring O!

I skim and swim
By a cloud's red rim;
And up to the azure flooring O!

And my wide wings drip,
As I slip, slip, slip,
Down through the rain-drops,
Back where Peg
Broods in the nest
On the little white egg,
So early in the morning O!

James Stephens.

Note.—Here a happy bird sings of his flights—

" Up by the oat-field,
Round the mill,
Past the meadow,
Down the hill,
So early in the morning O!"

The breezy swing of the poetry is like a sweep of wings through the air—

" I fling my wing
On the air, and bring
To sleepier birds a warning O!"

The lively, short swoops contrast with the long flights when the bird goes soaring, "up to the azure flooring O!" The bird's song is sung in three sections. In the first he describes his rising from his nest at daybreak, when,

> " I cling and swing
> On a branch, or sing . . .
> That the night's in flight!
> And the sun's in sight!"

The second section shows him fluttering around his little wife, Peg, arranging his feathers, weaving straws for the nest, or peeping at the egg, "underneath her wing reclining O!" In the third, he sings of his glorious flights between the trees to the "cloud's red rim" and his return to Peg through the raindrops. The sections are alike in arrangement.

The poet uses repetition for emphasis—

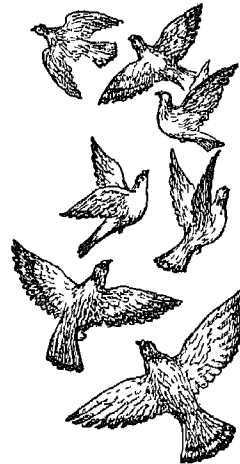
> " I sing, sing, sing . . .
> I slip, slip, slip "

When reciting these lines the children should become a little more emphatic at each repetition. The tree in the breeze is compared to a ship rocking on the waves, and a projecting bough on which several birds are swaying is thought of as the raised part at the back of a ship—the poop—with sailors in it. The "azure flooring" is the blue sky. In this poem are many examples of middle rhymes—"cling" and "swing", "fling" and "wing", "flit" and "twit"

Where is the bird's "little wee nest"? What warning does he bring to birds still sleeping? Describe one of his flights. Write three lines which tell of his home-coming in the rain What is the meaning of "fit my plumes"? What does he like to do in the sunshine? Write six lines which describe his rides on the tree tops (There is a blackboard sketch of a windmill on page 257)

3. Pigeons

> I clap a hand upon a hand,
> And fourteen sudden wings expand,
> And fourteen feet are folded up
> On doves that rim the sky's blue cup;
> And round they float like blossoms borne
> Upon a floating bough of thorn
> Till down they flutter, one by one,
> Like blossom when the summer's done
>
> I clap a hand upon a hand,
> And suddenly the air is fanned
> By seven blue birds near as light
> As the blue air whereon they smite
> I watch them from my window-sill,
> And round they go, and up, until
> The wing-wind of my pigeons seven
> Blows open the shut door of Heaven.

Wilfrid Thorley.

Note—The writer of this poem has seven pigeons which are walking about on the ground in front of his window He claps his hands and watches them swirl up into the air, circling higher and higher until—

> " The wing-wind of my pigeons seven
> Blows open the shut door of Heaven."

The words in the poem are carefully chosen to make the picture vivid "Clap" and "sudden" are onomatopoetic They should be spoken sharply to produce the effect of *shock*. The words "float," "floating," "flutter," bring out the lightness of the pigeons. The first half of each verse should be spoken hurriedly to illustrate the rush of frightened birds The second half moves much more slowly The open vowels in "round they float" lend themselves to slow speaking, which also suits the description of the birds wheeling about, "Till down they flutter, one by one."

There are beautiful similes. In the first the flying pigeons are compared to—

> "Blossoms borne
> Upon a floating bough of thorn" ,

and in the second they flutter down slowly—

> "Like blossom when the summer's done."

The sky is described as a blue cup, and the circle of birds makes a line of deeper blue around its rim This is a metaphor "The shut door of Heaven" is also a metaphor, suggesting that the sky is a great, closed mansion The poem shows a careful observation of details, for one who has ever watched pigeons will know that it tells *exactly* how they fly. How at the clapping of the hands their "sudden wings expand," their feet fold up, they float round in the air like blossoms, and like blossoms they float down one by one Poets observe the flowers, the birds, the animals and other creatures of nature very carefully, then they can tell us *exactly* what they have seen.

Do you know the name of a "thorn" on which blossoms grow? What does the poet mean by saying that "the air is fanned"? Why does the poet say "sudden" wings? To what are the birds compared? Find three words which sound exactly as they mean Tell about any pigeons that you have seen yourself

4. The Snowdrop

> Many, many welcomes,
> February fair-maid,
> Ever as of old time,
> Solitary firstling,
> Coming in the cold time,
> Prophet of the gay time,
> Prophet of the May time,
> Prophet of the roses,
> Many, many welcomes,
> February fair-maid!
>
> *Lord Tennyson*

Note—This little work is by Tennyson, several of whose poems are included in the section in Volume II. beginning on page 236 It is a song of welcome to the snowdrop. Tennyson calls the flower "February fair-maid" Do you not think that *fair-maid* is a very pretty name for the white flower? The music dances like the snowdrops' heads in a February breeze The arrangement of the rhymes is unusual. Two pairs of words are taken together—"old time" and "cold time", "gay time" and "May time" The word "prophet" is used three times This is a favourite trick of many poets By repeating certain words poets help us to hear the sound of bells, or the surge of the sea, or the rustling of the trees, or some other sweet music The delicate snowdrop, the first flower of spring, blooms alone in the cold, but, like a "prophet," it foretells good things to come—the gay time, the May time and the roses "Solitary" means alone, "firstling" means "the first-born of the season."

Why does Tennyson welcome the snowdrop? What pretty name does he call her? What is the meaning of "solitary"? When do you think is "the gay time"? What is a "prophet"? In which month do the roses come into bloom? Draw a picture of snowdrops (see blackboard sketch page 257)

5. Of The Daisies in a Breeze

The daisies, I think, are a tiny white choir
Who lead all the other small flowers up higher,
Whose voices are low, till at evening they sink
(Just look at their little wide eyes all a-wink!)

Each daisy, you know, at one time was a star,
On a very dark night it fell over the bar
Of Heaven that's farther than ever you'll think.
(Just look at their little wide eyes all a-wink!)

I think that up there they grew thirsty and bowed
Their pale little heads to sip out of a cloud,
And as they were drinking fell over the brink
(Just look at their little wide eyes all a-wink)!

Wilfrid Thorley.

Note—All the daisies, says Mr Wilfrid Thorley, were once stars in heaven They grew thirsty,

" And bowed
Their pale little heads to sip out of a cloud."

While they were drinking they leaned too far over the bar of heaven, and fell down to earth Now they sing softly in chorus like a "choir" to turn the thoughts of the other flowers of the fields heavenwards There is a musical refrain in the poem—"Just look at their little wide eyes all a-wink!" The daisies are spoken of as little people with low voices and round eyes It is a favourite fancy of poets that inanimate nature can speak and feel just as human beings do Such a figure of rhetoric is called *personification*

What is the colour of daisies' eyes? How did the daisy stars get to earth? Why does the poet say "pale little heads"? Write down the *refrain* in the poem Why do the daisies' voices sink at evening? What is a "choir"? Where have you heard a choir sing?

6. April Rain

It isn't raining rain to me,
It's raining daffodils,
In every dimpled drop I see
Wild flowers on the hills
The clouds of grey engulf the day,
And overwhelm the town—
It isn't raining rain to me,
It's raining roses down.

It isn't raining rain to me,
But fields of clover bloom,
Where any buccaneering bee
May find a bed and room.
A health unto the happy,
A fig for him who frets—
It isn't raining rain to me,
It's raining violets.

Robert Loveman

Note—This jolly poem plainly says, "Cheer up and never mind the weather, only see how the beautiful flowers are enjoying the rain. Without it we should have no daffodils, no roses, clover or violets." There are several examples of two or more words in a verse beginning with the same letter—*r*aining *r*ain, *d*impled *d*rop, *b*ucca-

neering *bee*, *fig for* him who *frets*. This, you will remember, is called alliteration. Words so arranged run smoothly and musically In Volume II, page 212, there is a stanza by Rose Fyleman which runs—

> "*C*rowds of them and *c*rowds of them
> All among the tide,
> On big waves and little waves
> Having such a ride!
> *C*reeping up the *c*rinkly sand,
> Dancing on the rocks,
> *C*rowds of them and *c*rowds of them
> In *c*reamy *c*urly frocks"

A "buccaneer" is a bold sea robber, or pirate, and Robert Loveman thinks of the bee as a bold robber of the flowers' sweet honey. "A fig for him who frets" means, "Take no notice of his grumbling, it is not worth listening to." The poet has a delicate sense of colour. He relieves "the clouds of grey" with yellow daffodils, pink roses and clover, and blue violets

Why does the poet like April rain? Where does the bee love to wander? Name all the flowers noted in this poem. Which lines in the poem paint a gloomy picture? How should they be spoken? What is the meaning of "buccaneering"? Can you think of another word that means "frets"? Tell these lines in your own words—

> "The clouds of grey engulf the day,
> And overwhelm the town"

What is commonly said about "April showers"?

WILLIAM BLAKE, A CHILDREN'S POET

William Blake was born in London, in the year 1757 His father was a hosier. He sold stockings and other woollen goods William was not very much like other children While they were playing at their games, he would sit or walk by himself, and, like Joan of Arc, he often saw visions that most other people have never seen. He not only saw fairies, but God and the angels As a child of four he "saw God put his forehead to the window," and at seven he spoke of a tree full of angels When he was ten years of age he tried to draw what he saw, and some of his drawings were very clever Later on, when he was twelve, he began to put his visions into poetry.

One writer says that Blake was the first poet to have the thoughts of a child. That is because he not only wrote poems for children—which nobody else did in those days—but even when he was grown up he saw things as a child sees them. Like Peter Pan he never grew up. So we call Blake the "Children's Poet," and you will see, too, that we might well call him the "Happy Poet," for his poems are full of the laughter and joy of everything that he sees about him.

" When the green woods laugh with the voice of joy,
And the dimpling stream runs laughing by,
When the air does laugh with our merry wit,
And the green hill laughs with the noise of it,——"

Blake was a very clever man. He wrote beautiful music for his own poems He worked so hard at his drawings that he became a skilful artist. There are pictures by William Blake in the Tate Gallery in London Most of them try to show in painting the thoughts that he had when reading the Bible

Blake married a poor girl who had never been to school, but he taught her a great deal, and she afterwards helped him very much in his work. He put together some of his poems about children to make a little book, which he called *Songs of Innocence* He and his wife drew every letter, with many pictures besides, on thin plates of copper, and they printed them off with their own hands Then they bound the sheets together into books. If you had one of those little books to-day you would be quite rich, for many people would want to give you hundreds of pounds for it. *Piping Down the Valleys Wild* is the first one in the book, and the next one is the "song about a lamb" that the child on the cloud told him to write.

A shepherd's pipe is a tube of reed or wood on which he makes music while watching his flocks.

When you read the poems by William Blake you will see that he must have been a happy man, although he was so poor, for there is so much laughter in his poems. From these five short poems write down all the phrases about laughter and happiness, then you will understand how Blake's love of nature fills him with joy For instance, in *Piping Down The Valleys Wild*, we have· "songs of pleasant glee; and he, laughing, said to me, with merry cheer, thy happy pipe, song of happy cheer, wept with joy; my happy songs, every child may joy to hear" It is a hundred years since Blake died, but people still talk about his poems and his pictures.

7 Piping Down The Valleys Wild

Piping down the valleys wild,
Piping songs of pleasant glee,
On a cloud I saw a child,
And he, laughing, said to me —

" Pipe a song about a lamb!"
So I piped with merry cheer
" Piper, pipe that song again,"
So I piped: he wept to hear.

" Drop thy pipe, thy happy pipe;
Sing thy song of happy cheer!"
So I sang the same again,
While he wept with joy to hear.

" Piper, sit thee down and write
In a book that all may read "
So he vanished from my sight,
And I plucked a hollow reed,

And I made a rural pen,
And I stained the water clear,
And I wrote my happy songs,
Every child may joy to hear

William Blake.

Note—In this poem William Blake is a gentle piper, who loved to wander about the countryside. One day he saw, sitting

on a cloud, a child who laughing said, "'Pipe a song about a lamb!'" So sweet and happy a melody the piper played that he had to repeat it for the child, "while he wept with joy to hear." Afterwards the child asked him to drop his pipe and sing the song, to which he listened with the same rapture as before Finally the child bade the piper write down his song, so that others might enjoy it also Then he disappeared The piper made himself a pen from a reed in the river, dyed the clear water and wrote many happy songs to give joy to children

The picture suggested by the poem is bright with the sunshine of happiness The piper and the child are delighted with each other The music made by the simple words is very like the music of a flute, clear and sweet. Let the pupils practise the sounds of "piping songs", "valleys wild"; "pleasant glee", "merry cheer", "happy pipe", "hollow reed" All these phrases have flutelike sounds and are peculiarly suited to children's voices. "He wept to hear" expresses an intensity of emotion natural to childhood, whose joys and sorrows are always vivid The "rural pen" made by the piper might be taken as symbolical of his work, for all his poetry is of nature (There is a blackboard sketch of a piper and a lamb on page 257.)

What did the child on the cloud ask of the piper? What kind of music did the piper play? How do you know that the child was pleased? What did the piper do after the child had vanished? How did the piper show that he was fond of children? Tell what you know about any other pipers.

8 The Lamb

Little lamb, who made thee?
Dost thou know who made thee,
Gave thee life, and bade thee feed
By the stream and o'er the mead,
Gave thee clothing of delight,
Softest clothing, woolly, bright,
Gave thee such a tender voice,
Making all the vales rejoice?
  Little lamb, who made thee?
  Dost thou know who made thee?

  Little lamb, I'll tell thee;
  Little lamb, I'll tell thee,
He is callèd by thy name,
For He calls Himself a lamb,
He is meek and He is mild,
He became a little child

I a child and Thou a Lamb,
We are callèd by His name
  Little lamb, God bless thee!
  Little lamb, God bless thee!

William Blake.

Note—This beautiful song is sung by a child to a lamb It has a gentle, slow rhythm and the words are tender and musical. The soft humming of the letter *m* runs throughout the poem—

" By the strea*m* and o'er the *m*ead . . .
Little la*mb* who *m*ade thee? . . .
He is *m*eek and He is *m*ild "

In the first stanza the child gently reminds the lamb of all its gifts—life, bountiful grass for food, "softest clothing, woolly, bright," and a "tender voice" to express its feelings The second stanza contains a beautiful reference to Christ, who identified Himself with both the child and the lamb and so made Himself the link between them. So the child looks upon the lamb with love and brotherhood, and whispers, "God bless thee " Many of Blake's poems have been set to music, this one among them The repetition of word and line makes the rhythm haunting "Mead," is used instead of "meadow," and "vales" instead of "valleys."

What question does the child ask of the lamb? Write the line telling where the lamb feeds Which words describe its fleece? What does the child say about its voice? In what ways was Jesus like a lamb? What do you think these lines mean?—

"I a child and Thou a Lamb,
We are callèd by His name"

Why does the child ask God to bless the lamb? Which lines in the poem do you think are most beautiful?

9 Laughing Song

When the green woods laugh with the voice of joy,
And the dimpling stream runs laughing by,
When the air does laugh with our merry wit,
And the green hill laughs with the noise of it;

When the meadows laugh with lively green,
And the grasshopper laughs in the merry scene,
When Mary and Susan and Emily
With their sweet round mouths sing "Ha, Ha, He!"

When the painted birds laugh in the shade,
Where our table with cherries and nuts is spread,
Come live, and be merry, and join with me,
To sing the sweet chorus of "Ha, Ha, He!"

William Blake.

Note—Whenever William Blake overflowed with happiness he sang of it, so that others might share his joy He was also always ready to join in with other people's merriment In this lively poem he sings of the laughter of rustling trees and "dimpling streams", of the green hill echoing the "'Ha, Ha, He!'" of merry girls, and of the gay voices of grasshoppers and birds accompanying the rest. Then he adds—

"Come live, and be merry, and join with me,
To sing the sweet chorus of 'Ha, Ha, He!'"

The rhythm dances gaily along The poem should be recited rather quickly and with spirit, the word "laugh" being emphasised a little at each repetition Let different pupils say "laugh" several times, trying to show its meaning by the expression they put into it When reciting the last two lines the pupil should appeal directly to the class, who might join in the last chorus of "Ha, Ha, He!" The poem makes a delightful recitation when expressed naturally and gaily, but should not, of course, be forced or overdone. Imperfect rhymes are found in *joy* and *by*, *shade* and *spread*

What picture can you see in the first stanza? What is "our merry wit"? How can "the green hill" be said to laugh? Describe a grasshopper and draw one if you can. How do you know from the poem that the sun is shining? What feast is spread on the table? Which is the jolliest line in the poem? What does William Blake mean by "painted birds"?

10. The Echoing Green

The Sun does arise,
And make happy the skies;
The merry bells ring
To welcome the Spring,
The skylark and thrush,
The birds of the bush,
Sing louder around
To the bells' cheerful sound,
While our sports shall be seen
On the Echoing Green.

Old John with white hair,
Does laugh away care,
Sitting under the oak,
Among the old folk.
They laugh at our play,
And soon they all say.
"Such, such were the joys
When we all, girls and boys,
In our youth-time were seen
On the Echoing Green"

Till the little ones, weary,
No more can be merry,
The sun does descend,
And our sports have an end.
Round the laps of their mothers
Many sisters and brothers,
Like birds in their nest,
Are ready for rest,
And sport no more seen
On the darkening Green.

William Blake.

Note—Here is another poem full of eager life. The sun rises on a warm, spring day. Birds sing and bells peal out. Children gather on the green for their sports In the shade of the trees the old folk sit on benches and watch the young at their play At length the sun goes down, the children, ready for rest, gather round their mothers' knees, and silence descends on "the darkening Green."

The short lines of the poem have a quickening effect on the rhythm which is in accordance with the liveliness of the scene described. Blake tells the poem as though he were one of the children playing The language beautifully suggests country sights and sounds—"Echoing Green"; "birds of the bush"; "old John with white hair", "the darkening Green" In the last stanza is a simile—

> " Many sisters and brothers,
> *Like birds in their nest,*
> Are ready for rest "

The poem is cheerful and contented, and expresses a child's enjoyment of freedom in the fresh air amid natural surroundings The green, or common land, of a village is a meadow on which all the inhabitants have rights in common. Sometimes they pasture cattle on the green In Blake's village there were benches in shady spots where villagers could gather for a chat and to watch the children at play.

How does the day begin happily in the poem? What birds sing in the spring? Describe the old folk of the village What brings the sports to an end? Tell all you know about the green on which the children are playing Find lines which suggest the happiness of the children To what are the tired children compared? What games do you play?

II. NURSE'S SONG

When the voices of children are heard on the green,
And laughing is heard on the hill,
My heart is at rest within my breast,
And everything else is still.

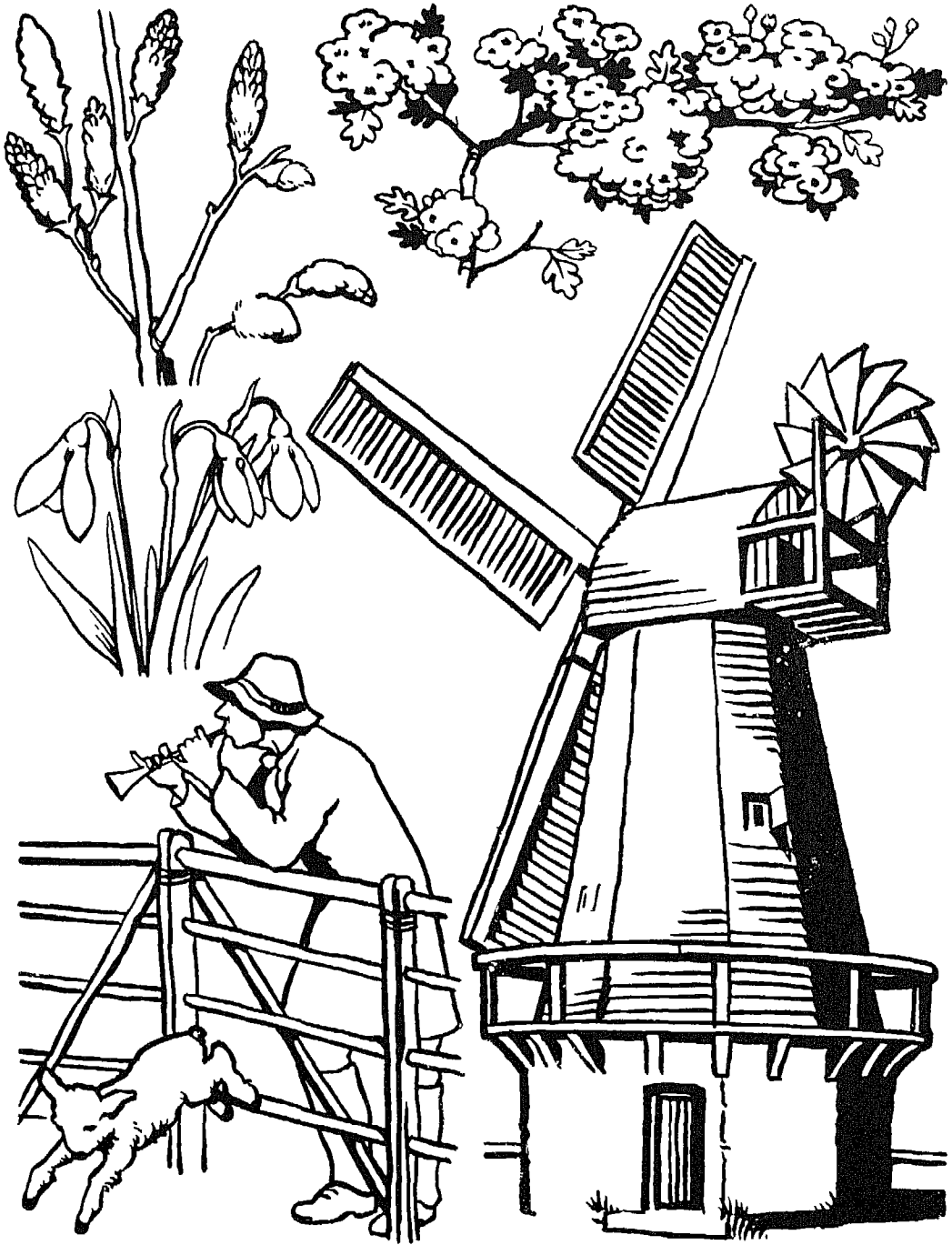
Then come home, my children, the sun is gone down,
And the dews of night arise,
Come, come, leave off play, and let us away,
Till the morning appears in the skies

No, no, let us play, for it is yet day,
And we cannot go to sleep,
Besides in the sky the little birds fly,
And the hills are all covered with sheep

Well, well, go and play till the light fades away,
And then go home to bed.
The little ones leaped, and shouted, and laughed,
And all the hills echoèd.

William Blake.

Note—This jolly poem tells of the children's nurse watching her charges romp in the meadow at the foot of the hill. The restful surroundings and the echo of happy laughter fill her heart with peace. At length the sun sets and the cold "dews of night" form on the grass. Then the nurse calls to the children—

> " 'Come, come, leave off play, and let us away,
> Till the morning appears in the skies ' "

Palm and May (Spring)
Snowdrops (The Snowdrop)

Windmill (A Bird's Song)
Piper and Lamb (Piping Down the Valleys Wild)

The children protest, however, that the daylight has not faded, the birds are still flying about and "the hills are covered with sheep." So they are permitted to play a little longer.

The lines have a swing in them and should be spoken rather quickly, excepting in the case of the last two in the first stanza—

> "My heart is at rest within my breast,
> And everything else is still."

Certain words of exclamation and strong action need special emphasis—

> "'*Come, come,* leave off play' . . .
> The little ones *leaped*, and *shouted*, and *laughed*."

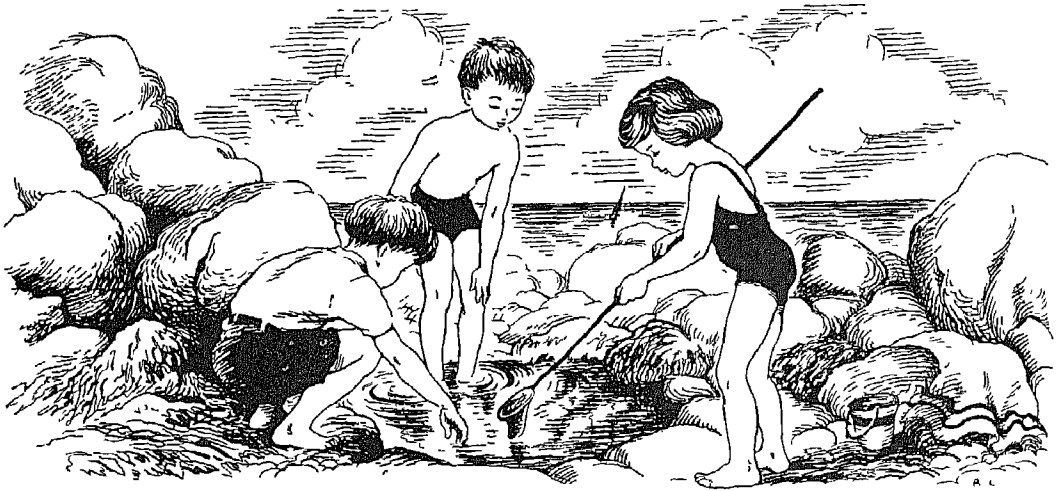
The poet paints beautiful pictures for us in very simple words—

> "The morning appears in the skies . . .
> The hills are all covered with sheep"

Many of the lines have a middle rhyme which adds lightness and quickness to the music—

> "Besides in the *sky* the little birds *fly* . . .
> Well, well, go and *play* till the light fades *away*."

What sounds make the nurse forget her cares? What are the children doing? Why does the nurse call them home? Write out the stanza which tells of the children's reply. How do the children show that they are pleased to stay longer? When ought a child to go to bed? What happens when "the dews of night arise"? Which words rhyme with "breast," "day," "sheep," "bed"? Draw a picture of the children at play.

THE SEASONS

Many thousands of years have passed away since God said to Noah—"While the earth remaineth, seedtime and harvest, and cold and heat, and summer and winter, and day and night shall not cease"

Every season has its own beauties, and its own pleasures, and its own music. The best of it is, that in the course of the year they all come round—spring, summer, autumn, winter—so that we do not get tired of any one of them.

"We should tire of Spring if no Summer came.
We should tire of Summer if it came to remain.
We should tire of Autumn if it came to stay.
We should tire of Winter did it not pass away
The year is complete, God made it so,
With bud, and blossom, and fruit, and snow."

"Bud" for the spring, "blossom" for the summer, "fruit" for the autumn, and "snow" for the winter

Besides their joys, the seasons also bring their work. Men sow seed in spring and carry home the harvest in autumn, birds and animals busily rear little families, trees and plants manufacture and store up food, even insects have their work to do in each season as it comes The poems following touch upon many of these things, for no detail in nature escapes the eye of the poet. Before considering them, however, the children may like to hear a little story which has been told many times in both prose and poetry.

On the edge of a wood stood a large anthill, and from spring time to late autumn anybody watching the ants would see them running to and from the hill in hundreds. They would be all hard at work, most of them carrying grains of food to be put away into the general larder. A grasshopper stood and watched one ant who toiled up the mound in the heat of the day, dragging behind him a large piece of cabbage stalk. "Are you not tired of all that hard work? Come and play with me instead," said the grasshopper

"I must not waste time while the weather is fine," replied the ant "Presently storms will come, and then I shall not be able to work."

"Foolish creature, not to enjoy life!" scoffed the grasshopper

The summer and autumn passed away. Bitter winds and rain swept through the wood and finally came a fall of snow. Not a single green leaf could the grasshopper find to eat. Numb with cold and very hungry he made his way to the anthill and humbly begged one of the ants for food

"Starving? Why, what did you do all the summer?" cried the ant.

"In summer I sang all day," was the answer.

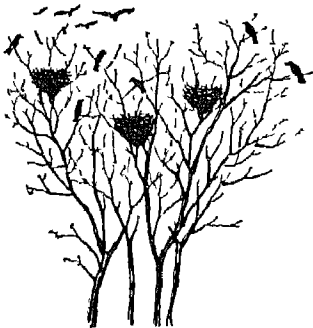
"Well, now you can dance!" replied the ant.

12. Weathers

I

This is the weather the cuckoo likes,
 And so do I;
When showers betumble the chestnut spikes,
 And nestlings fly·
And the little brown nightingale bills his best,
And they sit outside at "The Traveller's Rest,"
And maids come forth sprig-muslin drest,
And citizens dream of the south and west,
 And so do I.

II.

This is the weather the shepherd shuns,
 And so do I;
When beeches drip in browns and duns,
 And thresh, and ply,
And hill-hid tides throb, throe on throe,
And meadow rivulets overflow,
And drops on gate-bars hang in a row,
And rooks in families homeward go,
 And so do I. *Thomas Hardy.*

Note—Thomas Hardy, the composer of this poem, was a famous writer who died in 1928 He sings here of two different seasons of the year. The first attracts him out of doors to listen to the cuckoo and nightingale, admire the pretty flowered muslin dresses of the girls, and enjoy a chat with wayfarers and labourers sitting outside "The Traveller's Rest" Such weather makes city workers long for their holidays on or near the warm south and south-west coasts of England.

In the second stanza the poet pictures another season, when beech trees with sodden, brown leaves are straining in the wind, waves beat stormily on the shore, swollen streams turn meadows into swamps, and raindrops glisten on fences. Then, says Hardy—

> "Rooks in families homeward go,
> And so do I"

The poem has an attractive rhythm. The short lines make pauses in the music and contrast with the long, flowing lines. Have you ever watched a country dance in which the dancers seem to pause between lively figures in order to bow and curtsey to their partners? The graceful slow actions coming in between the running movements create a rhythm very like the rhythm of this poem. The pupils might intone the words on a low note and sing through a stanza This will help them to realise the beauty of the rhythm.

The language is descriptive and often alliterative—

> "Showers betumble the chestnut spikes .
> The little brown nightingale bills his best . . .
> Maids come forth sprig-muslin drest . . .
> Hill-hid tides throb, throe on throe"

The open vowels in the second stanza—flow, row, go—have a melancholy sound in them "Dun" is a dark greyish brown, the colour of a mouse's coat. To "thresh and

ply" is to beat the air and bend. To "throb, throe on throe" is to beat continuously as if in pain.

Which season is described in the first stanza? What things does the poet notice at this time of the year? What does "sprig-muslin drest" mean? Tell in your own words what the nightingale is doing What are "chestnut spikes"? Which season is described in the second stanza? Find words that sound exactly as they mean Why does the poet wish to be at home? Describe the countryside in this season What weather do you like?

(There are blackboard sketches of chestnut spikes, a nightingale and rooks on page 265)

13. The Barrel Organ

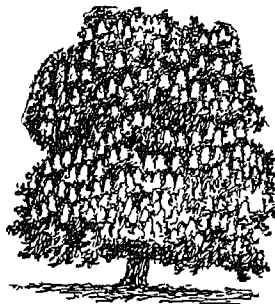
Go down to Kew in lilac-time, in lilac-time, in lilac-time,
Go down to Kew in lilac-time (it isn't far from London!),
And you shall wander hand-in-hand with love in summer's wonderland
Go down to Kew in lilac-time (it isn't far from London!).

The cherry-trees are seas of bloom and soft perfume and sweet perfume,
The cherry-trees are seas of bloom (and oh, so near to London!);
And there, they say, when dawn is high and all the world's a blaze of sky,
The cuckoo, though he's very shy, will sing a song for London.

The nightingale is rather rare, and yet they say you'll hear him there,
At Kew, at Kew, in lilac-time (and oh, so near to London!),
The linnet and the throstle, too, and after dark the long halloo,
And golden-eyed *tu-whit, tu-whoo* of owls that ogle London.

For Noah hardly knew a bird of any kind that isn't heard
At Kew, at Kew, in lilac-time (and oh, so near to London!),
And when the rose begins to pout and all the chestnut spires are out,
You'll hear the rest without a doubt, all chorusing for London.

Come down to Kew in lilac-time, in lilac-time, in lilac-time,
Come down to Kew in lilac-time (it isn't far from London!);
And you shall wander hand-in-hand with love in summer's wonderland;
Come down to Kew in lilac-time (it isn't far from London!).

Alfred Noyes.

Note.—Mr. Alfred Noyes is a modern writer who has composed much fine poetry. He has written this poem in such a way that you can hear the barrel organ grinding out its tune. This effect is cleverly produced by the rhythm, the very long lines and the constant repetition of phrases, which all combine to suggest the mechanical monotony of the barrel organ. Let the children tap out a few lines, with their right forefingers on their left palms, and they will find that each line has eight strong beats in it—

"The night|ingale |is ra|ther rare,|and yet |they say |you'll hear |him there| "

It is not a lively, skipping rhythm. The strong beats follow the weak beats and build up a rhythm which runs steadily along without pause or variety in it The regularity

of the beat gives us the inclination to dance to it, which is typical of barrel organ music

The words in the poem paint delightful pictures of the lilac, the cherry-blossom, the "chestnut spires" and the birds of "summer's wonderland"—

> "The cherry-trees are seas of bloom and soft perfume and sweet perfume .
> Golden-eyed *tu-whit, tu-whoo* of owls that ogle London "

The middle rhymes add to the haunting effect of the repetition.

(There is a blackboard sketch of a chestnut tree on page 265)

Why is this song called *The Barrel Organ*? What other name could you give it? What do you like about it? Describe the lilac Write a line which gives you a picture of cherry-blossom Which birds can be heard at Kew? What does the poet say about the owl?

14. The Seasons

January brings the snow,
Makes our feet and fingers glow

February brings the rain,
Thaws the frozen lake again.

March brings breezes loud and shrill,
Shakes the dancing daffodil.

April brings the primrose sweet,
Scatters daisies at our feet.

May brings flocks of pretty lambs,
Skipping by their fleecy dams.

June brings tulips, lilies, roses,
Fills the children's hands with posies.

Hot July brings cooling showers,
Apricots and gillyflowers.

August brings the sheaves of corn
Then the harvest home is borne.

Warm September brings the fruit,
Sportsmen then begin to shoot

Brown October brings the pheasant,
Then to gather nuts is pleasant.

Dull November brings the blast,
Then the leaves are whirling fast.

Chill December brings the sleet,
Blazing fires and Christmas treat.

Sara Coleridge.

Note—This poem is a favourite with children The stanzas are short, simple and easy to memorise They provide us with vivid glimpses of the months as they pass—

> "March brings breezes loud and shrill,
> Shakes the dancing daffodil . . .
> Chill December brings the sleet,
> Blazing fires and Christmas treat "

Teachers should be careful not to allow the children to lapse into a sing-song rendering of the poem No two months are alike, and if the pupils enter into the spirit of each in succession they will find that there can be a great deal of variety in the recitation Much is said in a few words, so the stanzas should be spoken rather slowly on the whole, and quickened here and there according to the sense—

> "Skipping by their fleecy dams . .
> Then the leaves are whirling fast."

"Gillyflower" is an old term for clove-scented pinks and other flowers similarly scented, such as white stock and wallflowers.

Answer these questions without looking at the poem. What are the names of the months? What do May, June and October bring? Which words rhyme with "feet," "pleasant," "treat"? Which month does the poem say is the wettest in the year? When do the leaves fall from the trees? Talk about your favourite month.

(There is a blackboard sketch of a pheasant on page 265)

15. PUK-WUDJIES

They live 'neath the curtain
  Of fir woods and heather,
And never take hurt in
  The wildest of weather,
But best they love Autumn—she's brown as themselves—
And they are the brownest of all the brown elves;
    When loud sings the West Wind,
    The bravest and best wind,
And puddles are shining in all the cart ruts,
    They turn up the dead leaves,
    The russet and red leaves,
Where squirrels have taught them to look out for nuts!

The hedge-cutters hear them
  Where berries are glowing,
The scythe circles near them
  At time of the mowing,
But most they love woodlands when Autumn's winds pipe,
And all through the cover the beechnuts are ripe,
    And great spiky chestnuts,
    The biggest and best nuts,
Blown down in the ditches, fair windfalls lie cast,
    And no tree begrudges
    The little Puk-Wudjies
A pocket of acorns, a handful of mast.

So should you be roaming
  Where branches are sighing,
When up in the gloaming
  The moon-wrack is flying,
And hear through the darkness, again and again,
What's neither the wind nor the spatter of rain—
    A flutter, a flurry,
    A scuffle, a scurry,
A bump like the rabbits' that bump on the ground,
    A patter, a bustle
    Of small things that rustle,
You'll know the Puk-Wudjies are somewhere around!

Patrick R. Chalmers.

Note—Here we have a delightful song about the *Little People* whom we call fairies, or gnomes, or pixies, or goblins, or elves. These brown elves love the autumn best because they can then easily hide away among the brown leaves

In the poem are many words which the poet has specially chosen to help us to hear certain sounds, such as—"a flutter, a flurry, a scuffle, a scurry, a patter, a bustle of small things that rustle, a bump like the rabbits' that bump on the ground" "Mast" is the fruit of the beech, oak and other forest trees. The "moon-wrack" is thin, flying clouds that often sweep across the moon's face in stormy weather Inside the

spiky cover of the horse chestnut fruit are the smooth, brown nuts which boys like to collect and thread on long strings

The poem makes a jolly recitation. It needs vigorous speaking where the words suggest noise and animation—

> " The wildest of weather . .
> When loud sings the West Wind,
> The bravest and best wind,
> The biggest and best nuts,
> Blown down in the ditches, . . "

The last stanza might be partly whispered, as there is a suggestion of mystery in the picture of the ghostly, moonlit wood "where branches are sighing" Suitable emphasis should be given to the onomatopoetic words in this stanza.

What do the Puk-Wudjies find in the woods? How will you know when the Puk-Wudjies are somewhere around? Which lines in this poem make you think of autumn? Why are the Puk-Wudjies safe from storms? Describe these Little People. What does the west wind of autumn do for them? Tell of any other names by which the Puk-Wudjies are known. What have you read about them elsewhere?

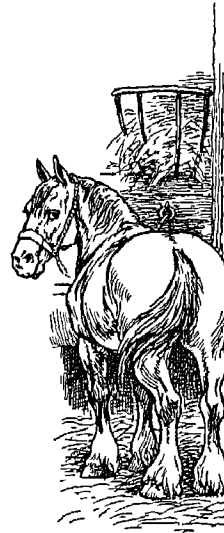
16 Etched in Frost

The corn is down,
The stooks are gone,
The fields are brown,
And the early dawn
Grown slowly behind
Where the mountains frown,
And a thin white sun
Is shivering down

There isn't a leaf,
Nor anything green,
To aid belief
That summer has been;
And the puffed-up red-breast
(Ball o' Grief)
Hops at the window
For relief.

The cows are in byre,
The sheep in fold,
The mare and the sire
Are safe from cold;
The hens are sheltered,
In wood and wire,
And the sheep-dog snoozes
Before the fire.

The farmer can grin,
And rub his hands,
For his crops are in
From the resting lands;
And his wheat is stored
In the oaken bin,
And his buxom wife
Makes merry within

James Stephens.

Note.—This poem gives us pictures of the winter season—pale sunshine, bare garden, "puffed-up red-breast" at the window, animals safely housed from wind and wet, the sheep-dog stretched in front of the fire, and the farmer's wife making all comfortable within doors.

The short lines draw attention to each brief statement, thus emphasising the details in the pictures, just as frost reveals the tiny

SKETCHES FOR THE BLACKBOARD

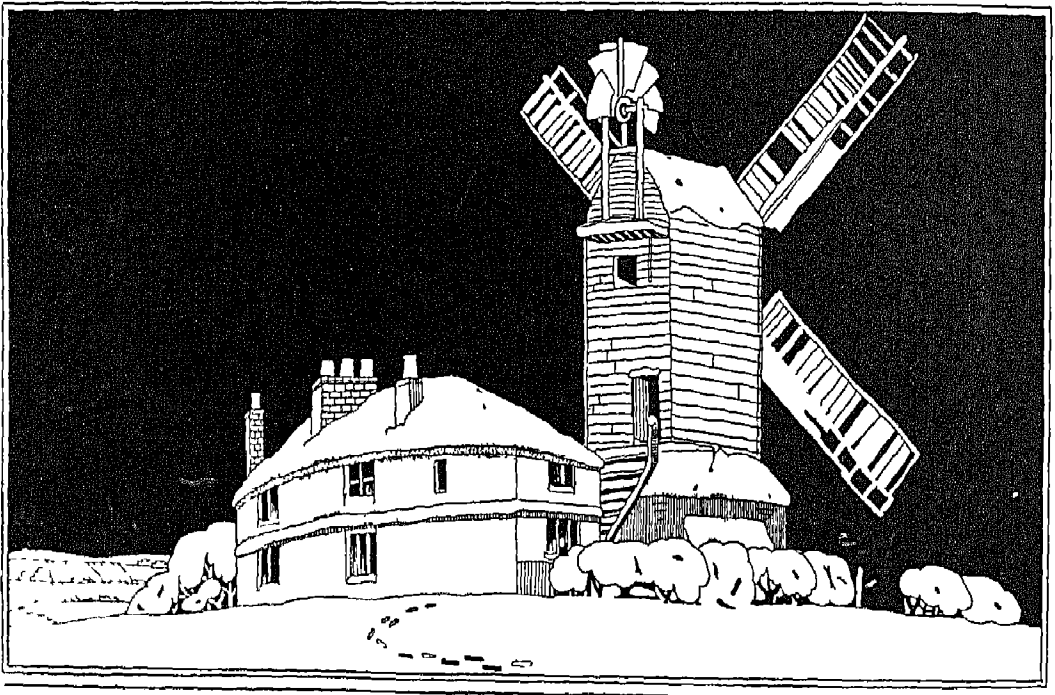
Rooks and Nightingale (Weathers)

Chestnut Spires (The Barrel Organ and Weathers) Chestnut Spikes (Puk-Wudjies)

Pheasant (The Seasons)

particulars of hedgerows and fences on which it lies In the beautiful description of the wintry dawn, it is said to be "growing," as if it were alive, the mountains are spoken of as a person with a frowning face, and the sun is a being also, thin, white and shivering. This description is an example of the figure of rhetoric called *personification* Notice the pretty name given to the robin—"Ball o' Grief"—who is looking for food on the window sill.

"Stooks" are bundles, or sheaves of grain; a "byre" is a cow house, the "mare" is the female horse, and the "sire" is the male

Who is "Ball o' Grief"? Why does the farmer grin? What is the meaning of "resting lands"? Write down lines describing the garden in winter Of what animals does the poem speak? How do they spend the winter? Describe a sheep-dog What do you think yourself about winter?

ROBERT LOUIS STEVENSON

17. Requiem

Under the wide and starry sky,
Dig the grave and let me lie
Glad did I live and gladly die,
And I laid me down with a will.

This be the verse you grave for me:
Here he lies where he longed to be,
Home is the sailor, home from sea,
And the hunter home from the hill

Robert Louis Stevenson

One of the best of the great men who wrote poems for children was Robert Louis Stevenson. He was born at Edinburgh in the year 1850. His father was an engineer who had to look after the lighthouses on the coasts of Scotland, and to see that they were in good order. Robert was a very delicate child, and was never well enough to go to school for many weeks together, so he often went with his father on his journeys to the lighthouses.

Robert wanted to be an engineer like his father, but he was not strong enough. He became a lawyer, but he spent most of his time in reading and writing. Whenever he read a fine book, he would copy out the best passages in a notebook that he carried in one of his pockets. Then he would try hard to write something as good in another little book, that he carried in the pocket on the other side of his jacket. In time Stevenson became a great author, and wrote essays and stories and poems. Later on, you will enjoy reading his stories of *Treasure Island*, *Kidnapped*, and others. His poems for boys and girls were published in a small volume called *A Child's Garden of Verses*.

Stevenson spent a very large part of his life in travelling in search of good health. He suffered greatly, but although he was always delicate and ailing, he was ever bright and cheerful and brave. At last he had to leave England and go to a warmer land.

On Christmas Day, 1889, he landed on the little island of Samoa, in the South Seas. Here he settled down and became a sort of chief. The natives loved him very much, and would do anything for him.

When he died, in 1894, sixty sturdy natives carried his body to the top of a lofty peak, where he had wished to be buried, and there they left him to rest, with the Pacific Ocean at his feet. On one side of his tomb, on a bronze plate, is this passage from the story of Ruth, which is told in the Bible:

"Whither thou goest, I will go,
And where thou lodgest, I will lodge,

Thy people shall be my people, and
Thy God my God,

Where thou diest, will I die,
And there will I be buried."

At the head of this chapter is the *Requiem* which Stevenson wrote himself, and which is engraved on the opposite side of his tomb.

Requiem is a Latin word meaning *Rest*; it was the first word of the Latin hymn sung to bid farewell to the dead,—"May God give you rest!"

R L S. (as he is often called) was tall and thin, with dark hair and wonderful brown eyes He was a very charming man, and everybody who knew him loved him, and so do many who have read his books and poems.

18. Foreign Lands

Up into the cherry tree
Who should climb but little me?
I held the trunk with both my hands
And looked abroad on foreign lands

I saw the next-door garden lie,
Adorned with flowers, before my eye,
And many pleasant places more
That I had never seen before

I saw the dimpling river pass
And be the sky's blue looking-glass,
The dusty roads go up and down
With people tramping in to town.

If I could find a higher tree
Farther and farther I should see,
To where the grown-up river slips
Into the sea among the ships,

To where the roads on either hand
Lead onward into fairy land,
Where all the children dine at five,
And all the playthings come alive

Robert Louis Stevenson

Note.—One day an adventurous small boy climbed up into his father's cherry tree, and, clinging to the trunk with both hands, peered about in all directions This was little Robert Louis Stevenson's first view of "foreign lands." He could see the whole of the garden next door and other gardens beyond, all new and strange. Far away he saw the blue thread of the river and the dusty highways with travellers passing up and down them What lay beyond? "If I could find a higher tree to climb," he thought, "I might catch sight of ships on the sea, and roads leading into fairy land!"

After reading the poem through once or twice, the pupils should cover their eyes with their hands for a while and imagine themselves in the little boy's place Then perhaps they will gradually come to realise the cleverness and beauty of the description. What would they notice first? The bright colours in the neighbouring garden, "adorned with flowers," as the poet says The distant view he pictures in another beautiful phrase—"The dimpling river"—so-called because it is a baby stream with tiny waves on it, reminding him perhaps of the dimples in a baby's fat cheeks and limbs. He calls the river, "The sky's blue looking-glass," which is a *metaphor*, suggesting a comparison between the river and a mirror. How wearily long the highways seem to a child! Stevenson gives us that impression in his lines about them—

> "The dusty roads go up and down
> With people tramping in to town."

From a higher tree he would see the end of the little stream, where, "a grown-up river," it "slips into the sea among the ships"

The most thrilling sight of all, however, he keeps to the last, because it is so very far away—the entrance to fairy land, where "all the playthings come alive"

From this study of the poem two things stand out clearly—the poet's gift of imagination, to see things through the eyes of a child; and his mastery of beautiful phrases.

Five o'clock would seem an odd time for dinner in these days, but it was not an uncommon time when Stevenson was a child.

Why does the poet call this poem "Foreign Lands"? What are the strange things that

happen in fairy land? If he had climbed a higher tree what would he have seen? If you put your head near the water of a "dimpling river" what will you see? Write down lines and words that sound pleasant when you say them What does the river do when it "grows up"? Which words rhyme with "five," "hands," "eye"?

19 From a Railway Carriage

Faster than fairies, faster than witches,
Bridges and houses, hedges and ditches;
And, charging along like troops in a battle,
All through the meadows the horses and cattle:
All of the sights of the hill and the plain
Fly as thick as driving rain;
And ever again, in the wink of an eye,
Painted stations whistle by.
Here is a child who clambers and scrambles,
All by himself and gathering brambles,
Here is a tramp who stands and gazes,
And here is the green for stringing the daisies!
Here is a cart run away in the road
Lumping along with man and load;
And here is a mill and there is a river:
Each a glimpse and gone for ever!

Robert Louis Stevenson

Note.—In this poem Stevenson shows us pictures of all the things of which we catch glimpses when we are looking out of a railway carriage window as the train rushes along.

"Bridges and houses, hedges and ditches, ...
And here is a mill and there is a river
Each a glimpse and gone for ever!"

The poem has a *galloping* rhythm. It should be read with a swing, or the train will not go "Faster than fairies, faster than witches" In olden days, people believed that witches were old women who rode through the air on broomsticks

The poet points out so many things following quickly on one another that he makes us feel the breathless haste of the journey. He gives us just the outstanding features of each object as it leaps into sight, choosing picturesque words to enable us to see it vividly "In the wink of an eye," he says, "Painted stations whistle by", a child by the roadside "clambers and scrambles", a stretch of green awakens memories of daisy chains; and a runaway cart goes "Lumping along with man and load." Two fine similes add to the beauty of the language The startled horses and cattle scatter through the meadows, "Charging along *like troops in a battle*"; and the different sights fly past the window "*as thick as driving rain*" "River" and "ever" are imperfect rhymes.

Name all the things that can be seen from a railway carriage window. How fast do the stations whistle by? How fast do the houses fly by? What does the poet say about the horses and cattle in the meadows? Find words which sound like their meanings. Why should you recite this poem quickly? What are witches? What do you remember about riding in a train?

20. The Summer Sun Shone Round Me

The summer sun shone round me;
The folded valley lay
In a stream of sun and odour
That sultry summer day.

The tall trees stood in the sunlight
As still as still could be,
But the deep grass sighed and rustled,
And bowed and beckoned me.

The deep grass moved and whispered,
And bowed and brushed my face;
It whispered in the sunshine,
"The winter comes apace."

Robert Louis Stevenson.

Note—The poet lay on the grass in a "folded valley"—a valley shut in amongst hills—and the sun streamed upon him and

around him The weather was "sultry," and the air heavy with the "odour" of warm foliage Not a leaf moved on the trees. It was a perfect summer's day, but its only message to the poet was that winter was fast approaching

The music of the poem is slow and quiet Notice the first line—"The summer sun shone round me." Do you hear how musical all these soft *s* sounds are? An "odour" is "a sweet scent," and "sultry" means "warm and close." "Apace" means "quickly." The lines about the deep grass are very pretty, you can easily picture it sighing, rustling, whispering, bowing, brushing

The poem should be said softly and dreamily, with gentle emphasis on the onomatopoetic words The line—"As still as still could be"—should be very slow indeed and almost whispered.

Can you name some musical words that give the sound made by trees? By birds? What did the grass whisper? What could the poet see in the "folded valley"? Pick out all the words describing the movements of the grass. How do you think the poet was feeling? What kind of message was he given? Write down a line that you think is musical.

21. I Will Make You Brooches

I will make you brooches and toys for your delight
Of bird-song at morning and star-shine at night
I will make a palace fit for you and me
Of green days in forests and blue days at sea

I will make my kitchen, and you shall keep your room,
Where white flows the river and bright blows the broom.
And you shall wash your linen and keep your body white
In rainfall at morning and dewfall at night.

And this shall be for music when no one else is near,
The fine song for singing, the rare song to hear,
That only I remember, that only you admire,
Of the broad road that stretches and the roadside fire.

Robert Louis Stevenson

Note.—In this poem we read of the poet's love for life in the open air He promises all sorts of pleasant things if we will only go with him along the "broad road" and leave the houses behind. Among his treasures are the songs of the birds, starlight, the green shade of forests, blue seas, camping beside the river on a heath yellow with broom, and singing songs of life on the open road. He does not care for crowds and noise. He enjoys the "fine" and "rare" song which no one but his companion would "admire.

The swing of the rhythm and the beautiful phrasing of the poem make its music delightful. Let the children consider these phrases, closing their eyes and trying to picture the scenes—"bright blows the broom", "green days in forests", "blue days at sea"; "white flows the river"; "dewfall at night." Ask them to think which would be best expressed cheerfully, dreamily, quickly, quietly or slowly, and let individual children give their renderings to the class. The poem has been set to music by more than one composer, and the pupils would doubtless like to hear it sung if possible.

"Broom" is a shrub that grows on heaths and moorland Its flower is like that of a pea, but bright yellow in colour, and its leaves are covered with silky hairs

What shall we have instead of brooches and toys? Where will our grand palace be? Where will our kitchen be? What shall we have for music? Whom have you seen with a "roadside fire"? How do you know that the poet likes a quiet life? Write down a line which is full of colour. Why do you think composers have chosen this poem to set to music? What do you see where "bright blows the broom"?

FAIRIES

" Where the bee sucks there suck I,
In a cowslip's bell I lie,
There I couch when owls do cry.
On the bat's back I do fly
After summer, merrily.
Merrily, merrily shall I live now
Under the blossom that hangs on the bough "

So sings Ariel, the fairy servant of a magician in Shakespeare's play, *The Tempest* Shakespeare's fairies are the daintiest creatures imaginable. They are very playful. They chase "with printless foot" the ebbing tide on the sand and flee from it when it returns. They make verdant fairy rings by dancing their "merry roundels" in the moonlight As the ground becomes parched under their feet, Puck refreshes it with sprinklings of dew, thus making it greener than ever.

The fairies of Shakespeare's poetry are also gifted with magic powers. They can unloose the winds, raise tempests, darken the sun, call forth thunder and lightning and "pluck up the pine and cedar." On one occasion they turn into a pack of hounds and hunt out of a cave some bad men who are planning to rob and kill an innocent person.

Ariel himself is a dainty and delightful little being. To please his master he is ready—

" To fly,
To swim, to dive into the fire, to ride
On the curl'd clouds "

He changes himself into a water nymph and into a terrible harpy when required; or he becomes invisible—a "calling shape," a "beckoning shadow" and an "airy tongue " Then, if mortals are kind, he warns them of danger and they follow the sound of his songs into safety. Should they be evildoers, however, he delights in devising punishments which make them howl with fright and pain. He terrifies two wicked men by roaring "like a whole herd of lions," and afterwards leads them through "tooth'd briers, sharp furzes, pricking goss and thorns," into a stagnant pool, where they dance in mud, bespattered to their chins. He can play heavenly music on pipe and tabor, and though "of air" feels pity for men in distress His master calls him a quaint and delicate spirit; and when at length he frees him from all service, Ariel sings the happy song quoted above.

In the poems following, other poets sing about the fairies, and tell us still more of these delightful little people

22. The Fairy Queen

Come follow, follow me,
You fairy elves that be,
Which circle on the green:
Come follow Mab, your queen.
Hand in hand let's dance around,
For this place is fairy ground.

When mortals are at rest,
And snoring in their nest,
Unheard and unespied,
Through keyholes we do glide;
Over tables, stools and shelves,
We trip it with our fairy elves

And if the house be foul
With platter, dish or bowl,
Upstairs we nimbly creep,
And find the sluts asleep·
There we pinch their arms and thighs;
None escapes, nor none espies.

But if the house be swept,
And from uncleanness kept
We praise the household maid,
And duly she is paid.
For we use before we go
To drop a tester in her shoe.

Upon a mushroom's head
Our tablecloth we spread;
A grain of rye, or wheat,
Is manchet, which we eat;
Pearly drops of dew we drink
In acorn cups filled to the brink.

The grasshopper, gnat, and fly
Serve for our minstrelsy,
Grace said, we dance awhile,
And so the time beguile,
And if the moon doth hide her head;
The glowworm lights us home to bed.

On tops of dewy grass
So nimbly do we pass,
The young and tender stalk
Ne'er bends when we do walk,
Yet in the morning may be seen
Where we the night before have been

Anon

Note.—The poem contains many old ideas which we find in writings of the time of Queen Elizabeth At night the fairies, accompanied by Mab their queen, enter people's houses through the keyholes. They swarm "over tables, stools and shelves," peering into every corner If they find the house dirty, or any plates and dishes not washed, they "nimbly creep" upstairs and pinch the sleepers' arms and legs. "None escapes, nor none espies" When they enter a clean and tidy house, however, they "drop a tester" in the housemaid's shoe before leaving Afterwards they hold a feast, using mushrooms for tables and acorn-cups for drinking "pearly drops of dew" When "grace after meat" has been said they fall to dancing, and finally go home to bed by the light of the moon or the glowworm

The tiny, unsubstantial forms of the little people are gracefully suggested in the poem—

"Through keyholes we do glide . . .
On tops of dewy grass
So nimbly do we pass,
The young and tender stalk
Ne'er bends when we do walk"

How dainty, too, must be the dancing where—

> "The grasshopper, gnat and fly
> Serve for our minstrelsy."

The short lines of the stanzas make for sprightliness, the two longer ones at the ends introduce variety into the music, and harmoniously slow down each stanza to its conclusion. Some of the words are old-fashioned. A "tester" was sixpence, and "manchet" was the name given to fine white bread. "Sluts" were untidy women "Foul" and "bowl"; "go" and "shoe"; "fly" and "minstrelsy" are imperfect rhymes. In these days we should say, "You fairy elves *who* circle on the green," instead of "which circle on the green"; and "we glide" and "we walk" instead of "we do glide" and "we do walk."

What is the name of the Fairy Queen? How do fairies enter a room? What do fairies do to maids who are dirty and untidy? What do fairies eat and drink? Describe the kind of music that the grasshopper, gnat and fly would make. What is the meaning of "elves which circle on the green"? How can you tell in the morning where fairies have been the night before? How do fairies find their way home to bed? Which words rhyme with "awhile," "espies," "maid"? Write down words from the poem which are not now in common use.

23 FAIRIES IN WINTER-TIME

Deep down near the hidden roots
  Of the oldest trees
There the squirrels hoard their nuts,
  And the kindest bees
Sometimes leave a honey-comb . . .
  What d'you think that's for?
Why . . . of course it's meant to be
  Just a Fairies' Store!

For the Fairies feast and dance
  And they hold their Court
Just the same when nights are long
  As when nights are short,
Just the same through frosty cold
  As in summer weather.
They've a winter hidey home
  Where they live together.

All the squirrels know the spot:
  All kind bees as well
But they will not breathe a word,
  None of them will tell
Still . . I've got a secret plan . .
  When it starts to snow
I shall track the Fairies' feet
  And then *I* shall know!

Ethel Talbot.

Note.—In this poem the writer tells us how the fairies find food in winter. They are supplied by the squirrels and bees with nuts and honey-comb, and they keep a little store—

> "Deep down near the hidden roots
> Of the oldest trees."

In winter fairies live all together in a "hidey home" and hold their dances as in summer, but only the squirrels and the kindest bees know where to find them The poet, however, has a "secret plan" for finding out the fairies' winter quarters. This she divulges at the end of the poem.

The children should recite the poem in a natural, conversational tone, bringing out the meaning of such words as—"deep down," "frosty cold," "breathe a word," "secret plan," "winter hidey home."

Who are the fairies' friends? How do they help the fairies in winter? What do the fairies call their winter house? What food do they eat? How do they spend the long winter nights? Which words describe wintry weather? What is the poet's "secret

plan"? When are nights short? When are nights long? Why are the bees called "kind"?

24. The Fairy at the Zoo

A darling Fairy went
  A-visiting the Zoo.
She paid a shilling bit
  And then they let her through
And then she went the rounds
  And visited each beast
That lives within the grounds—
  The largest and the least

She saw the Wolves pace up
  And down inside their cage
She watched the Monkeys laugh
  And then stop short and rage·
She saw the Lion King
  Sit still and stare and stare
As though he hardly saw
  The crowds of people there

And *then*—she found a seat
  And ordered tea and buns
But—though the waitress came
  And brought the nicest ones—
She couldn't eat one bit
  Nor drink one sip of tea·
"Oh dear! ." the Fairy sobbed,
  "I wish those beasts were free!"

Ethel Talbot

Note—This poem tells of a "darling fairy" who loved animals and went to the Zoo to see them. She paid her "shilling bit" just like a mortal and then visited every creature—"the largest and the least." What she saw took away all her appetite for tea, and left her in tears—

"'Oh dear!' the Fairy sobbed,
  'I wish those beasts were free!'"

The poem begins eagerly and with spirit. In the second stanza, the different characters of the animals are shown in their reactions to confinement, and the lines should be recited with sympathy for each The Wolves, used to hunting, pace up and down inside their cage; the chattering, lively Monkeys laugh and rage alternately, the dignified Lion King sits motionless, seeing nothing. The alliteration—"Sit still and stare and stare"—emphasises the lion's dull gaze into vacancy The last two lines of the poem are an outburst of grief and need to be said with feeling The poet repeats *one* bit and *one* sip—

"She couldn't eat one bit
  Nor drink one sip of tea"—

to intensify the emotion of the kind-hearted fairy.

What kind of Fairy went to the Zoo? What did she see? How did the animals behave? What did the Fairy order for tea? Why could she not enjoy it? Write down what the Fairy said. Why were the animals unhappy? Which line is very slow and sad?

25. Picnics

If you go a-picnicking and throw your scraps
  about
You'll never see the little folk go running in
  and out,
And if you leave your orange-peel all littered
  on the grass
You'll never go to Fairy Land or see the
  fairies pass.
For empty tins and tangled strings
And paper bags are not the things
To scatter where a linnet sings

So if you go a-picnicking remember you're a
  guest
Of all the tiny people, and you'll really find
  it best
To leave their ball-room tidy and to clear
  away the mess,
And *perhaps* you'll see a fairy in her newest
  dancing dress

But paper bags and broken combs
Will really wreck the pixie homes
And frighten all the tiny gnomes.

But if you go a-picnicking and you are elfin-wise
You'll maybe hear with fairy ears and see with goblin eyes,
The little folk will welcome you and they will open wide
The hidden doors of Fairy Land, and you will pass inside,
And maybe see a baby fay
White cradled in a cherry spray
Although it is Bank Holiday

B. E Todd

Note.—We can all learn lessons from the fairy people—to be kind and cheerful, and quick to help others This fairy song tells us that fairies will never show themselves to those untidy, selfish children who leave—

" Orange-peel all littered on the grass . . .
Empty tins and tangled strings
And paper bags—"

wherever they have been "a-picnicking" Parties enjoying their food on the grass under the blue sky ought to remember that they are guests of the fairies, who keep their ball-rooms tidy and beautiful, and are frightened away by the sight of ugly litter A child who is, however, "elfin-wise"—wise about the habits and ways of fairies—will be loved by the fairies, and probably, even on a Bank Holiday, invited into Fairy Land, to see—

" A baby fay
White cradled in a cherry spray "

The music of the poem is light and dancing The three short lines all rhyming together at the ends of the stanzas are emphatic The poem appeals to children, and makes a very good recitation, with scope for expression and individuality It requires speaking not too quickly but clearly and fluently, so that the rhythm is not broken up. The poet has found many names for the fairies He calls them the "tiny people, pixies, gnomes; elves; little folks, and baby fay." A linnet is a little brown English songbird with a crimson chest and forehead

Where is the baby fay's cradle hung? How small do you think fairies are? Where are their ball-rooms found? Why should you never leave litter about? Write down the different names given to fairies in the poem. What children are loved by the fairies? Tell all you know about a linnet. What does the poet say of a linnet's song? Write out some lines that you would like to remember

26 THE ELFIN PEOPLE FILL THE TUBES

I know a solemn secret to keep between ourselves—
I heard it from a sparrow who heard it from the elves—
That always after 2 a m, before the first cock-crow,
The Elfin people fill the tubes just full to overflow.

The grown-ups do not know it; they put the trains to bed,
And never guess that magic will drive them in their stead;
All day the goblin drivers were hiding in the dark
(If mortals catch a fairy's eye they take it for a spark).

Elves patter down the subways, they crowd the moving stairs,
From purses full of tiddly-winks they pay the clerk their fares,
A Brownie checks the tickets and says the proper things:
"Come, pass along the car there! Now, ladies, mind your wings!"

They're never dull like mortals who read and dream and doze;
The fairies swing head downwards, strap-hanging by their toes;
When Puck is the conductor he also acts as host
And sets them playing Leapfrog or Coach or General Post.

I'd love to travel with them! The sparrow says he thinks
I'd get from here to Golder's Green for three red tiddly-winks;
Two yellows pay to Euston, four whites to Waterloo,
Perhaps I'll go some moonlight night; the question is—will *you*?

W. M. Letts.

Note.—This is an amusing fairy poem very much liked by children. It begins as a mystery—a "solemn secret"—communicated by a sparrow to a child, who divulges it in turn to the reader. The secret is that from 2 a m until cockcrow "the elfin people fill the tubes." They drive the trains by magic and passengers pay their fares "from purses full of tiddly-winks" A Brownie says, "Come, pass along the car there!" and, "Now, ladies, mind your wings!" While they journey they play at Leapfrog, Family Coach and General Post, with Puck for conductor and master of the ceremonies. None is ever dull or quiet. The sparrow says that three red tiddly-winks will take us to Golders Green,—

"'Two yellows pay to Euston, four whites to Waterloo,
Perhaps I'll go some moonlight night; the question is—will *you*?'"

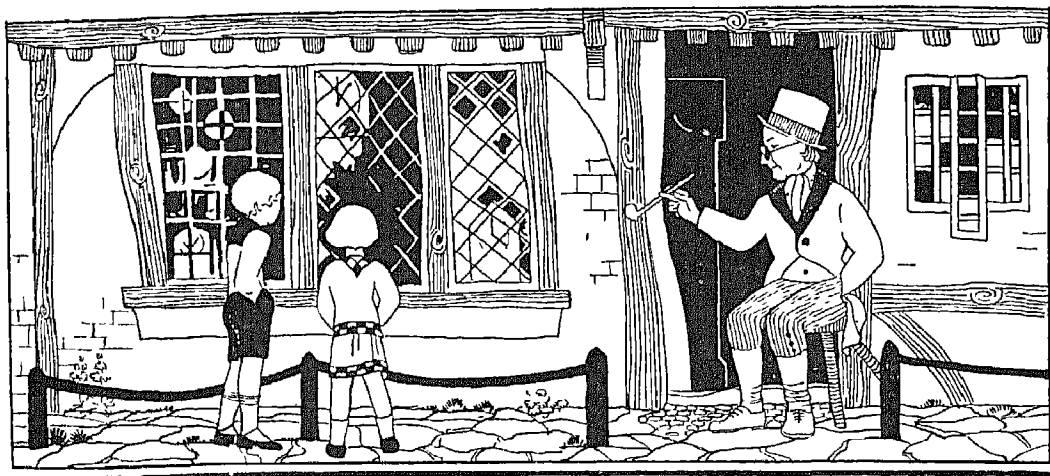
The recitation of the poem might begin in a whisper, gradually growing louder to the exciting third and fourth stanzas and dying down again at the end The lines should be said quickly and eagerly so as not to spoil the flow of the rhythm. The alliterative phrasing hastens the smooth running—"The Elfin people fill the tubes just full to overflow." In the fourth stanza the alliteration intensifies the sleepiness and slows down the pace—"They're never dull like mortals, who read and dream and doze." Let the children repeat these words, illustrating the sense by the sound—"I know a solemn secret"; "elves patter down the subways" (There is a blackboard sketch of an elf on page 283)

What are "the tubes"? What is the "solemn secret"? Who drive the trains? What money do the elves use? Who clips the tickets of the elves travelling on the trains? What do they do during their journeys? Puck, or Robin Goodfellow, is the mischievous, friendly fairy of English folk-stories. What does Puck do in this poem? Find a slow and sleepy line in the poem. Find a line that hurries along. What is your answer to the question at the end? What is the rhyme scheme of the poem? (*a a*; *b b*.)

SKETCHES FOR THE BLACKBOARD

"My Dog"
Pied Piper (Rats)

Monkeys (Fairies at the Zoo)
Grizzly Bear (W-o-o-o-o-o-ww!)

MISCELLANEOUS POEMS

27 THE WATCHMAKER'S SHOP

A street in our town
  Has a queer little shop
With tumble-down walls
  And a thatch on the top;
And all the wee windows
  With crookedy panes
Are shining and winking
  With watches and chains.

(All sorts and all sizes
  In silver and gold,
And brass ones and tin ones
  And new ones and old,
And clocks for the kitchen
  And clocks for the hall,
High ones and low ones
  And wag-at-the-wall)

The watchmaker sits
  On a long-leggèd seat
And bids you the time
  Of the day when you meet,
And round and about him
  There's ticketty-tock
From the tiniest watch
  To the grandfather clock.

I wonder he doesn't
  Get tired of the chime
And all the clocks ticking
  And telling the time,
But there he goes winding
  Lest any should stop,
This queer little man
  In the watchmaker's shop

From "Punch."

Note —A quaint picture of a quaint man in a quaint setting is drawn in "The Watchmaker's Shop" This dilapidated little place is thatched, and its tiny windows "with crookedy panes" display a wonderful assortment of timepieces. Inside the shop the watchmaker sits "on a long-leggèd seat" surrounded by all kinds of ticking clocks which he is continually winding "lest any should stop" The repetition of some of the words in the second stanza emphasises the prodigality of the display—

" All sorts and all sizes
  In silver and gold,
And brass ones and tin ones
  And new ones and old,
And clocks for the kitchen
  And clocks for the hall."

In the third stanza is an example of *climax*, which adds impression to the statement preceding it—

> "And round and about him
> There's ticketty-tock
> *From the tiniest watch*
> *To the grandfather clock*"

Notice the onomatopoetic phrases—"wag-at-the-wall," "ticketty-tock"—and the metaphor—

> "All the wee windows
> Are shining and winking"—

suggesting that they are little faces To "bid" or "pass the time of day" is to exchange greetings and friendly remarks

What is described in the first stanza? What are the windows doing? Describe the inside of the shop What kinds of clocks are there? Why is the watchmaker "a queer little man"? Find words which sound exactly as they mean. Which word describes the striking of the grandfather clock? What is a grandfather clock like? What kind of clock would you like for yourself? (There is a blackboard sketch of a wag-at-the-wall on page 283)

28. Hawkers

Mushrooms! fresh mushrooms! who'll buy my mushrooms?
They're white as a lily and pink as a pearl,
I gathered them early when roosters were calling,
And fairies were prancing in last giddy whirl.

Baskets! fine baskets! who'll buy my baskets?
They're light as the feathers but strong as the trees,
I made them from withies which grow by the river,
Where water-sprites' singing floats soft on the breeze.

Clothes-props! strong clothes-props! who'll buy my clothes-props?
They're straight as the larch poles and knotted like staves,
I cut them from woodlands far out in the country
Where dryads sigh softly like far distant waves

Lavender! sweet lavender! who'll buy my lavender?
A score scented bottles on each purple spike,
I picked them from gardens all blazes of colour,
Where eager-eyed pixies seek honey they like.

Come early, young masters, with me to the pastures,
The woodlands and gardens, to play at your ease,
You'll there find the fairies, the elves and the dryads,
Who merrily caper and prance as they please.

By permission

Note—This poem should be said in a clear, ringing voice, rather slowly; for hawkers have to make their voices carry and they move slowly along as they cry their wares The rhythm has a long, slow swing in it to suit the pace of the hawker. All the men spoken of in the poem have attractive goods, and still more attractive are the places whence they come—the haunts of fairy folk. The mushroom hawker is rifling the meadows at cockcrow, before the fairies have ceased dancing. The basket vendor cuts his withies from the home of the water-sprites The seller of clothes-props visits the country woods and is familiar with the dryads. The lavender merchant catches sight of pixies

in his scented gardens Hawkers are evidently the men with whom to go to meadows, woodlands and gardens in search of fairies

The language of the poem is rich in similes—"white as a lily"; "pink as a pearl"; "light as the feathers"; "strong as the trees"; "straight as the larch poles"; "knotted like staves", dryads sigh softly "like far distant waves" "Withies" are tough, flexible branches of willow or osier, used for basket making and binding bundles of wood; "staves" are walking sticks, "larch poles" are the straight trunks of larch trees; "dryads" are wood nymphs, semi-divine maidens who inhabit trees, "water-sprites, pixies and elves" are all fairy beings (There are blackboard sketches of a dryad and a mushroom on page 283.)

What goods are the hawkers trying to sell? Write a line which describes the mushrooms. Write a line describing the baskets Which words are used for the last dance of the fairies? What are fairies living by the river called? What is a dryad? Write two lines with colour in them. What can the hawkers show boys who go with them?

29. My Dog

Have you seen a little dog anywhere about?
A raggy dog, a shaggy dog, who's always looking out
For some fresh mischief which he thinks he really ought to do
He's very likely, at this minute, biting someone's shoe

If you see that little dog, his tail up in the air,
A whirly tail, a curly tail, a dog who doesn't care
For any other dog he meets, not even for himself,
Then hide your mats, and put your meat upon the top-most shelf.

If you see a little dog, barking at the cars,
A raggy dog, a shaggy dog, with eyes like twinkling stars,
Just let me know, for though he's bad, as bad as bad can be,
I wouldn't change that dog for all the treasures of the sea!

E Lewis.

Note —This is a jolly poem with a spirited rhythm and an air of happy irresponsibility. It is a favourite with children, who are generally interested in animals. Here they have the story of a very naughty little dog. He is "a raggy dog, a shaggy dog," always on the look-out for mischief. He bites shoes and mats, barks at the traffic and runs off with the meat He has no fears for himself and cares nothing for any other dog in the world, but patters about—

> "His tail up in the air,
> A whirly tail, a curly tail"—

and his eyes "like twinkling stars"

This poem is a delightful word picture. The dog is brought into being by vivid phrases like the deft strokes of a black and white artist. Notice how the essential characteristics are summed up in—"tail up in the air"; "biting someone's shoe"; "barking at the cars"; "hide your mats" Some lines are humorous—

> "A raggy dog, a shaggy dog—
> A whirly tail, a curly tail."

The repetition in the last stanza emphasises the naughtiness of the small dog—"He's bad, as bad as bad can be"

Describe the little dog's appearance. Why is he said to be "as bad as bad can be"? What must you do if you see him coming into the house? How do you know that the poet loves the dog? Tell about any dog you know yourself. (There is a blackboard sketch of "My Dog" on page 277.)

30. Five Eyes

In Hans' old Mill his three black cats
Watch the bins for the thieving rats
Whisker and claw, they crouch in the night,
Their five eyes smouldering green and bright·
Squeaks from the flour sacks, squeaks from
  where
The cold wind stirs on the empty stair,
Squeaking and scampering, everywhere
Then down they pounce, now in, now out,
At whisking tail, and sniffing snout,
While lean old Hans he snores away
Till peep of light at break of day,
Then up he climbs to his creaking mill,
Out come his cats all grey with meal—
Jekkel, and Jessup, and one-eyed Jill.

Walter de la Mare

Note—This poem makes a fine recitation Read it through, letting the children emphasise the strong beats by tapping on their desks. The rhythm conveys an impression of jumping or pouncing The word painting in the poem is very striking; note the colour in the verse—"Their five eyes smouldering green and bright" Invite the children to listen to the tiny noises echoing inside the draughty, silent old building—

" Squeaks from the flour sacks, squeaks from
  where
The cold wind stirs on the empty stair,
Squeaking and scampering, everywhere."

By means of the clever onomatopoetic phrasing we both *see* and *hear*—"Whisking tail, and sniffing snout"—and amid all this excitement upstairs we are given a glimpse of "lean old Hans" peacefully asleep and snoring "till peep of light at break of day" The soft, rich sound of the letter *j* makes the alliteration of the last line very musical Let the children repeat these words and phrases trying to show their meanings by their sounds—"creaking mill," "thieving rats," "whisking tail," "sniffing snout," "snores," "crouch." (There is a blackboard sketch of a rat on page 283.)

What cats live in the old mill? Where do you find out why there are only *five* eyes? Find two words which suggest the sounds made by mice running about Which line describes the mice themselves? Why are the cats "all grey with meal" in the morning? Write the name of the poet who composed "Five Eyes" What is the rhyme scheme of the poem? What words do you know that rhyme with "night"?

31. W-o-o-o-o-o-ww!

Away in the forest, all darksome and deep,
The Wolves went a-hunting when men were
  asleep,
And the cunning Old Wolves were so patient
  and wise,
As they taught the young Cubs how to see
  with their eyes,
How to smell with their noses and hear with
  their ears,
And what a Wolf hunts for and what a Wolf
  fears.
Of danger they warned "Cubs, you mustn't
  go there—
It's the home of the Grizzily-izzily Bear"
    W-o-o-o-o-o-ww!

The Cubs in the Pack very soon understood
If they followed the Wolf law the hunting
  was good,
And the Old Wolves who'd hunted long
  winters ago,
Knew better than they did the right way to
  go
But one silly Cub thought he always was
  right,
And he settled to do his *own* hunting one
  night
He laughed at the warning—said *he* didn't
  care
For the Grizzily-izzily-izzily Bear!
    W-o-o-o-o-o-ww!

So, when all his elders were hot on the track,
"I'm off now!" he barked to the Cubs of the
  Pack.

"I'll have some adventures—don't mind what you say!"
A wave of his paw—and he bounded away.
He bounded away till he came very soon,
Where the edge of the forest lay white in the moon,
To what he'd been warned of—that terrible lair—
The haunt of the Grizzily-izzily Bear!
W-o-o-o-o-o-ww!

He came . and what happened? Alas! to the Pack
That poor silly Wolf-cub has never come back
And once, in a neat little heap on the ground,
The end of a tail and a whisker were found,
Some fur, and a nose-tip—a bristle or two,
And the kindly old Wolves shook their heads, for they knew
It was all of his nice little feast he could spare,
That Grizzily-izzily-izzily Bear!
W-o-o-o-o-o-ww!

Nancy M Hayes

Note.—This song of the disobedient wolf cub and the grizzly bear is a great favourite with children, for its quiet moralising no less than its tragi-comic story. The rhythm has a jolly swing in it as of wolves hunting The humour lies in the expression of the obvious—

" How to see with their eyes,
How to smell with their noses and hear with their ears",

in the depiction of the cub as semi-human, "A wave of his paw—and he bounded away", and in the quaint description of his remains—

" In a neat little heap on the ground,
The end of a tail and a whisker were found,
Some fur, and a nose-tip—a bristle or two . . .
It was all of his nice little feast he could spare,
That Grizzily-izzily-izzily Bear!"

The whole class should join in the howl at the end of each stanza.

A vivid picture can be seen in the words, "the edge of the forest lay white in the moon."

A "lair" is a wild beast's den or lying-place, "grizzly" means grey

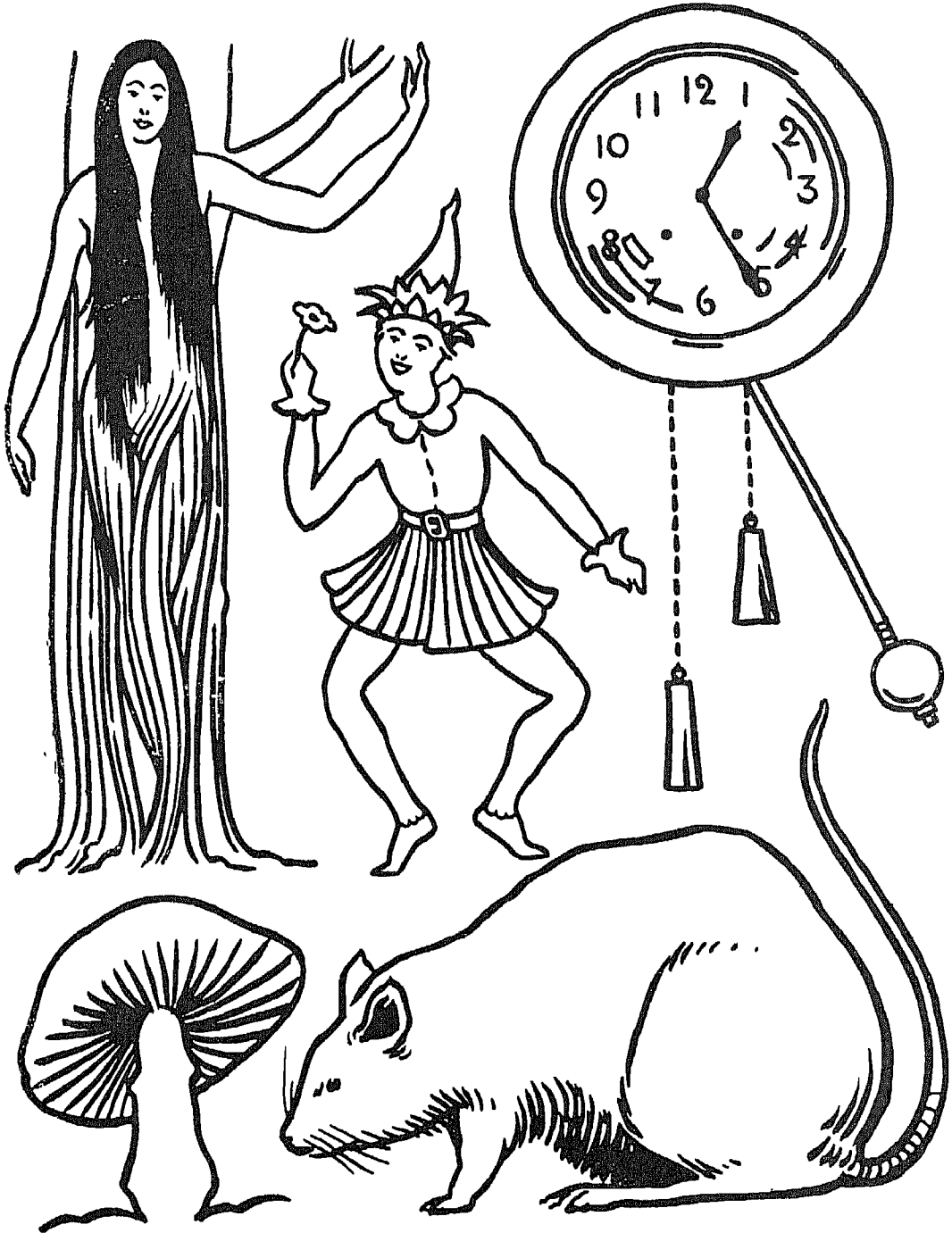
What is a large company of wolves called? Which words describe the old wolves? How did the old wolves teach the cubs to go hunting? What warning did they give? Why was the disobedient cub "silly"? Where did he go? What happened to him? What does the music of the poem resemble? Write down some amusing lines. How does the poet describe the forest? Draw a picture of a scene in the poem.

32. Rats

Rats!
They fought the dogs, and killed the cats,
And bit the babies in the cradles,
And ate the cheeses out of the vats,
And licked the soup from the cooks' own ladles,
Split open the kegs of salted sprats,
Made nests inside men's Sunday hats,
And even spoiled the women's chats,
By drowning their speaking
With shrieking and squeaking
In fifty different sharps and flats.

. . . .

Into the street the Piper stept,
Smiling first a little smile,
As if he knew what magic slept
In his quiet pipe the while;
Then, like a musical adept,
To blow the pipe his lips he wrinkled,
And green and blue his sharp eyes twinkled
Like a candle flame where salt is sprinkled,
And ere three shrill notes the pipe uttered,
You heard as if an army muttered;

SKETCHES FOR THE BLACKBOARD

Dryad (Hawkers)
Mushroom (Hawkers)

Elf (The Elfin People Fill The Tubes)
Wag-at-the-Wall (The Watchmaker's Shop)
Rat (Five Eyes)

And the muttering grew to a grumbling;
And the grumbling grew to a mighty rumbling;
And out of the houses the rats came tumbling.
Great rats, small rats, lean rats, brawny rats,
Brown rats, black rats, grey rats, tawny rats,
Grave old plodders, gay young friskers,
Fathers, mothers, uncles, cousins,
Cocking tails and pricking whiskers,
Families by tens and dozens,
Brothers, sisters, husbands, wives—
Followed the Piper for their lives.
From street to street he piped advancing,
And step for step they followed dancing,
Until they came to the river Weser

Robert Browning.

Note—This is an extract from a poem called "The Pied Piper of Hamelin" (See Class Picture No 154 in the portfolio)

The piper was a clever musician who wore a *pied* suit of clothes He came to the city of Hamelin which was overrun with rats, and the Mayor and Corporation promised him a large sum of money to destroy the vermin. The piper then walked "from street to street" playing on his pipe a curious, shrill tune which drew all the rats after him. He led them to the river Weser, where all were drowned save one, who swam to the other side and lived to tell the story. When the piper returned for his pay, he found the Mayor and Corporation unwilling to give him the amount promised In a passion, "Once more he stept into the street," and this time his strange music drew the children in Hamelin from their homes All excepting one lame boy followed the piper into a magic cavern in the mountain overlooking the city, and were never seen again. Thus the people of Hamelin were terribly punished for breaking their promise

The extract makes a splendid recitation It is graphic and full of movement and energy. Let the children repeat these phrases, trying to make them sound realistic—"shrieking and squeaking", "three shrill notes", "the grumbling grew to a mighty rumbling", "grave old plodders", "gay young friskers." The first ten lines of poetry should be spoken quickly and forcibly, the voice rising to shrillness at "shrieking and squeaking" The second part of the extract begins softly and slowly—

"As if he knew what magic slept
In his quiet pipe the while"

It soon quickens, however, and the speaker's voice should grow excited and hurried to suit the mad scamper of the rats. By his clever enumeration of the different kinds of rats, the poet impresses us with their vast numbers, and also adds a spice of humour to the tale.

The rhythm is lively and dancing, and though the lines do not often vary in length, the picturesque language and capricious arrangement of rhyming lines prevent monotony The scene is laid in Germany in the year 1376, and the poet suggests an old-world and foreign atmosphere by his mention of babies in cradles, kegs of salted sprats, and cheeses in vats. Notice the vivid simile—

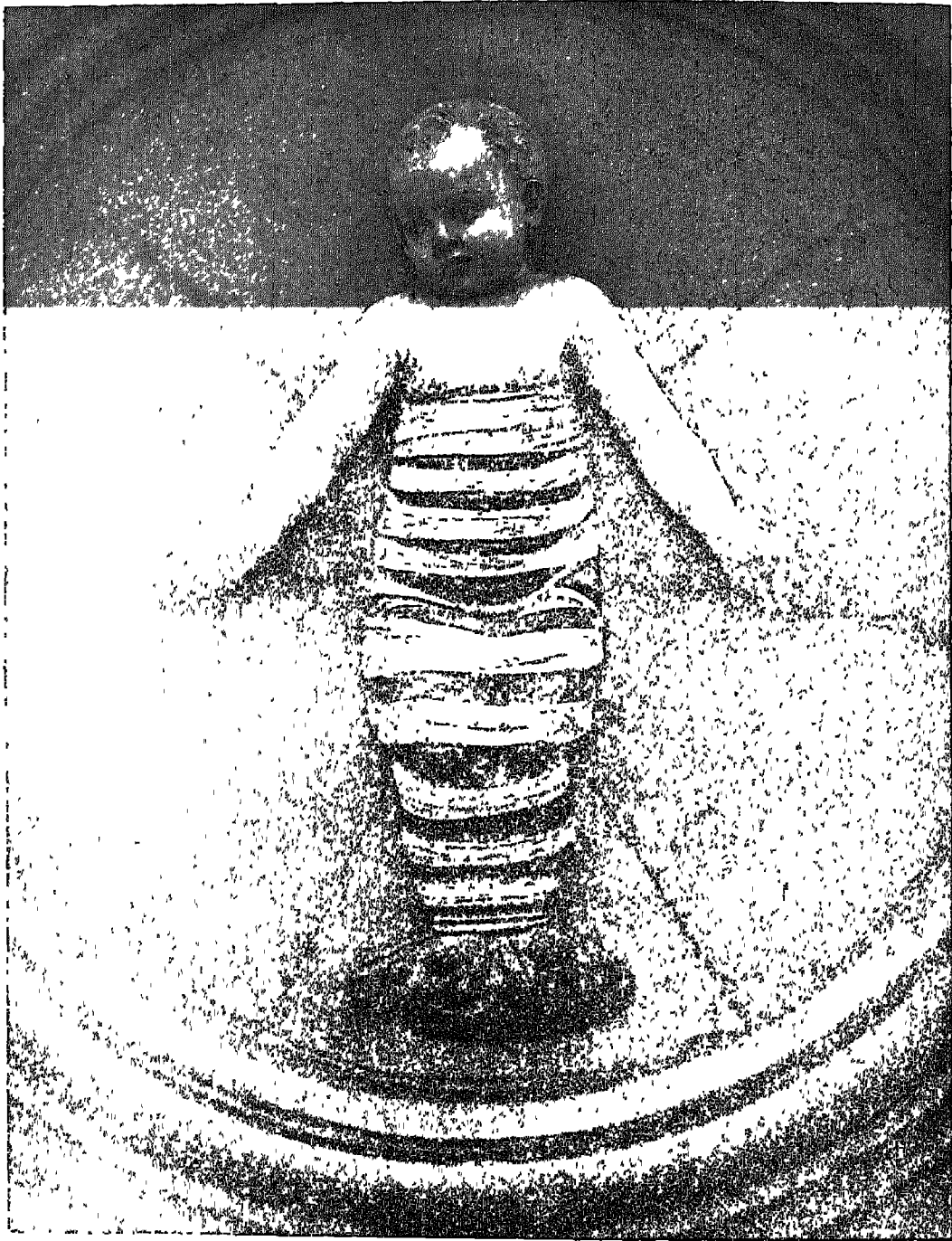
"And green and blue his sharp eyes twinkled
Like a candle flame where salt is sprinkled"

"Vats" are large tubs, an "adept" is a person who knows his business thoroughly, "brawny" means strong, "tawny" is sandy or tan-coloured. "Weser" should be pronounced *Vay-zer*

Tell of all the ways in which the rats annoyed the people of Hamelin. Which words describe the noises that they made? What does the poet say about the piper's eyes? Which line suggests that the piper was a mysterious man? What kind of music attracted the rats? To what is the approach of the rats compared?

THIRD YEAR'S COURSE

OF

COMPOSITION

From a terracotta medallion by Andrea della Robbia] [*Photograph Alinari*

SWADDLED INFANT

A series of these terracotta medallions by Andrea della Robbia occupy the spandrels of [illegible] degli Innocenti) at Florence The Foundling Hospital was the earliest of its kind in Europe [illegible] the larger number of whom are dispersed among the peasantry living round Florence, who [illegible]

INTRODUCTION TO THE THIRD YEAR'S COURSE OF COMPOSITION

THE course of work for the third year follows on from that given in Volume II. and covers a further field of word-study, grammar, oral and written composition

The word-study includes opportunity for abundant dictionary work, further practice in the use of synonyms and opposites, the insertion and choice of appropriate words in sentences, and the marking of stressed syllables The advantages of introducing children at this stage to the use of the dictionary cannot be over-estimated. It affords constant practice for them to *do* something for themselves, when the preliminary difficulties attending its use have been conquered it is a real source of pleasure to the majority of the pupils, and there is no better means of helping them to enrich their vocabulary Many cheap, abbreviated dictionaries printed in bold type are now available for school use.

The simple grammatical definitions of the noun, verb, adjective, adverb and pronoun, have not been repeated, any revision of these terms being best made from the lessons which deal with them separately in Volume II The teacher will naturally emphasise or limit the grammatical terminology in the third year at discretion.

In this year's course of composition special emphasis is laid upon sentence building from *phrases*, rather than from single words, with the aim of giving the pupil a wider range of vocabulary to assist him in his own compositions Plenty of practice is also given in the framing of complex sentences by the use of conjunctions The composition work has been limited to subjects with which the pupil is already familiar, both from the reading and from oral discussion It is strongly recommended that the salient words and phrases required for the composition should be discussed, selected and written on the blackboard before the children begin their writing. Skeleton stories, telegrams, messages, directions and descriptions form a large part of the exercises on composition, as well as purely imaginative work. Oral composition still continues to hold an important place in the year's work. Written *drill*, too, should be regularly practised at the beginning of a writing lesson Whenever opportunity occurs let the children write simple messages, for it is only by continued daily practice in writing that the children will become reasonably proficient with their pens.

1.—THE GIANT CORMORAN

Introduction

THE following passage will furnish a simple model for other imaginative descriptions of people. Throughout the description the emphasis is laid upon the *size* of the giant. In the opening sentence we are told that he was *huge*, the following sentence gives his dimensions His crossing the sea, eating six people at a sitting, carrying numbers of cattle, sheep and pigs, all serve to illustrate his enormous proportions, and the children must be led to appreciate the manner in which this point is brought out Before beginning their own attempts at description the children must grasp the fact that they must have in their own minds a clear picture of the person. They must then present their picture boldly and in detail so that their words convey as far as possible just what they see Their opening sentences must bring out the main feature of the person. They must be trained to avoid all vague, terms, slang and exaggerations, and aim to select words which exactly fit the meaning they wish to convey. Constant practice in the choice of words is necessary to enrich their vocabulary and to give training in discrimination Comparisons and similes are often useful in descriptive work, some exercises on these forms of speech are also given in this lesson.

A blackboard sketch of the giant with his prey hanging from his belt is given on page 295.

Reading

In those days the Mount of St. Michael, in Cornwall, was the fastness of a huge giant whose name was Cormoran.

He was full eighteen feet in height, some three yards about his middle, of a grim fierce face, and he was the terror of the countryside He lived in a cave amidst the rocky Mount, and when he desired food he would wade across the tides to the mainland and furnish himself with all that came in his way The poor folk and the rich folk alike ran out of their houses and hid themselves when they heard the swish-swash of his big feet in the water; for if he saw them he would think nothing of broiling half-a-dozen or so of them for breakfast. As it was, he seized their cattle by the score, carrying off half-a-dozen fat oxen on his back at a time, and hanging sheep and pigs to his waistbelt like bunches of dip-candles. Now this had gone on for long years, and the poor folk of Cornwall were in despair, for none could put an end to the giant Cormoran.

FLORA ANNIE STEEL. *Jack the Giant Killer.*

ORAL WORK

What is the first word used to describe the giant?

Would he have stood as high as the class-room ceiling?

If you linked hands, how many of you would it have taken to encircle the giant's waist?

What is another name for a *fastness*?

Where did the giant make his house?

What did he do when he was hungry?

How did the people of the countryside know that he was coming?

What caused the sound of *swish-swash*?

Why did Cormoran not drown when he was crossing the sea?

How many people could the giant eat for breakfast?

What is another name for *cattle*?

How did Cormoran carry the cattle?

How did he carry the sheep?

What do you think he did with the cattle and sheep?

How many sheep do you think he ate for dinner?

When you eat sheep how much do you buy, and by what name do you call the meat?

How do you know that the giant must have been very big and strong?

Why were the people of the country *in despair*?

WRITTEN WORK

I. Dictation.

Dictate from the "Reading" the passage beginning "The poor folk and the rich folk" to "bunches of dip-candles."

II. Selection of appropriate words.

Write on the blackboard but do not underline the italicised words:

1. This woke the giant, who (ran, tripped, *rushed*, trudged) in a rage out of his cave.
2. On came the giant at full speed (crying, *bawling*, saying, remarking), at the top of his voice, "Make way, there!"

3. The monster's look was (very, rather, *exceedingly*, most) fierce
4. Jack was (surprised, *terrified*, frightened, disturbed) to find himself in the clutches of the giant, and to see the courtyard of the castle strewn with men's bones
5. The children came to a (nice, *magnificent*, big, lovely) mansion where dukes and duchesses and earls and countesses were enjoying themselves
6. In an instant there appeared one of the most (delightful, *beautiful*, pretty, good-looking) princesses ever seen

The children must choose the most appropriate words, which are printed in italics for the convenience of the teacher only.

III. The use of comparisons in descriptive work.

Write on the blackboard

1. Tell how a giant is different from a man in the following respects (*a*) in size, (*b*) in face, (*c*) in the place where he lives, (*d*) in what he eats; (*e*) in how he gets his food, (*f*) in how he crosses the sea
2. Imagine a tiny flower fairy and tell in the same way as in Exercise 1 how she is different from a girl.

2.—SYNONYMS AND OPPOSITES

INTRODUCTION

THE following exercises are similar to those of the previous year, though more advanced in character. The children should be encouraged to make full use of their dictionaries in this lesson The substituted words must be correctly spelt and the children should have the opportunity both to hear and to practise their pronunciation.

The arrangement of *phrases* into sentences is an advance on the arrangement of *words* into sentences, which was given as an exercise in the previous year. As an additional exercise for the brighter children, certain of these phrases have been selected to form a basis for sentence making

Oral Work

A Using their dictionaries, let the children find as many synonyms as they can for the following words.

1. Little. (Small, minute, diminutive, tiny, wee.)
2. Cheerful. (Gay, blithe, cheery, light) hearted, merry, joyous, joyful, jolly.
3. Brave. (Courageous, valiant, bold, daring, heroic)
4. Tired (Weary, fatigued, sleepy, bored.)

The children who find synonyms should put them into sentences of their own in order to bring out the shades of difference in meaning.

B Let the children give the opposites of the words in Exercise A and put them into sentences.

Written Work

I. Synonyms.

Write on the blackboard·

The battle of the winds began. The heroes *trembled* in silence as they heard the *shrieking* of the blasts; while the palace *rocked* and all the city, and *great* stones were *torn* from the crags and the forest pines were *hurled* earthward, north, south, east and west, and the sea *boiled* white with foam, and the clouds were *dashed* against the cliffs

The children must rewrite the passage, replacing the words in italics with others of similar meaning, so that the sense of the passage remains the same.

II. Opposites.

Write on the blackboard:

When a child, the princess was *quiet* and *gentle* in her ways, and treated her parents and subjects alike with perfect *courtesy*. Everyone was charmed with her *good-nature* and ready to *praise* her on all occasions When she became queen, she was famous for her *generous* and *merciful* rule. Though always quick to *forgive* any personal insult or public crime, she was astonished in her *modesty* at the *gratitude* and *love* which her subjects displayed towards her.

The children must rewrite the passage, changing the words in italics for others of opposite meaning so that the passage means exactly the opposite of what is given

III. Arrangement of phrases.

Write on the blackboard

1. and he pursued a wild animal so eagerly, once upon a time; that none of his people could follow him; a king was hunting in a great wood.
2. and looking round him; he stood still; when evening came, he found that he had lost his way.
3. to seek out a path; he tried, but he found none.
4. with a nodding head, then all at once, coming up to him; he saw an old woman, and she was a witch

The children must arrange these phrases into sentences, putting in the capitals, commas and full stops where necessary

IV. Sentence making.

Write on the blackboard·

1. once upon a time.
2. when evening came.
3. then all at once

The children must put each of these phrases into sentences of their own.

3.—THE ELVES

Introduction

THE "Reading" for this lesson is a simple narrative, which provides material for the study of *and* when used for joining sentences The teacher should discuss with the children the need to join sentences which express thoughts that follow one another In order to show the children the ugly and tedious effect of many short sentences, the teacher may read aloud portions of the passage omitting the conjunctions, for example —"So the maid stood godmother The maid was then for going home. The elves begged her to stay at least three more days with them She consented She spent the time in mirth and jollity. The elves seemed very fond of her. At last she was ready to go away. The elves filled her pockets with gold. The elves led her back again out of the mountain"

In the first of the exercises the sentences are joined by the simple insertion of the word *and* In the second it must be pointed out that the repeated words must be omitted and replaced by *and*

It must be emphasised that only sentences which express connected thoughts can be joined in this way. For example, we may say:—The horse shied *and* the groom ran away. But we cannot say:—The horse shied *and* there was a beautiful sunset.

The "Reading" also provides material for word-study and substitution of phrases Reference may be made to the story of *Rip Van Winkle*, which contains a similar thought.

There is a blackboard illustration of an elf on page 283 of this volume.

Reading

There was once a poor servant girl, who was very clean and industrious; she swept down the house every day, and put the sweepings on a great heap by the door. One morning, before she began her work, she found a letter, and as she could not read, she laid her broom in the corner, and took the letter to her master and mistress, to see what it was about; and it was an invitation from the elves, who wished the maid to come and stand godmother to one of their children The maid did not know what to do, and as she was told that no one ought to refuse the elves anything, she made up her mind to go.

So there came three little elves, who conducted her into the middle of a high mountain, where the little people lived. Here everything was of very small size, but more fine and elegant than can be told The mother of the child lay in a bed made of ebony, studded with pearls, the counterpane was embroidered with gold, the cradle was of ivory and the bathing tub of gold.

So the maid stood godmother, and was then for going home, but the elves begged her to stay at least three more days with them, and so she consented, and spent the time in mirth and jollity, and the elves seemed very fond of her. At last, when she was ready to go away, they filled her pockets with gold, and led her back again out of the mountain.

When she got back to the house, she was going to begin working again, and took her broom in her hand, it was still standing in the corner where she had left it, and began to sweep Then up came some strangers, and asked her who she was and what she was doing And she found that instead of three days, she had been seven years with the elves in the mountain, and that during that time her master and mistress had died.

THE BROTHERS GRIMM *The Elves*

Oral Work

In what way did the girl show that she was clean and industrious?

Think of another word for *industrious.*

What is meant by the *sweepings*?

Where does your mother put the sweepings from your house?

How do you know that the maid had not been to school?

What is the name of the ceremony to which godmothers and godfathers come?

What do you know about elves?

What is *ebony*, and what colour is it?

From what is ivory made?

Think of a simple word for *conducted*

Say in other words, *was then for going home.*

Think of another word for *consented*

Why did the strangers ask her what she was doing?

WRITTEN WORK

I. Dictation.

Dictate from the "Reading" the second paragraph, beginning "So there came three little elves"

II. Joining sentences by inserting "and."

Write on the blackboard.

1. The house was kept clean The sweepings were put on a heap by the door.
2. The room was not yet swept. The letter was lying on the table.
3. The bed was made of ebony. The counterpane was embroidered with gold.
4. The cradle was of ivory The bathing tub was of gold
5. The maid stood godmother The elves begged her to stay three more days.

The children must rewrite these sentences, joining them by *and.*

III. Joining sentences by substituting "and."

Write on the blackboard but do not underline the italicised words.

1. She laid her broom in the corner *She* took the letter to her master and mistress.
2. The elves invited her to visit them *The elves invited her* to stand godmother
3. The maid stood godmother. *The maid* was then for going home.
4. She consented. *She* spent the time in mirth and jollity
5. They filled her pockets with gold. *They* led her out of the mountain.
6. Then up came two strangers *The two strangers* asked her who she was

The children must rewrite the sentences, joining them by *and* The words to be omitted are printed in italics for the convenience of the teacher only.

IV. Sentence writing, using the word "and."

Write on the blackboard·

1. In two sentences joined by *and,* tell how you clean your teeth.
2. In two sentences joined by *and,* tell how you buy sweets
3. In two sentences joined by *and,* tell how you dress to go out in the rain.

4.—SNOW-WHITE AND ROSE-RED

PART I

Introduction

THE description of Snow-white and Rose-red is built up by comparing and contrasting the attributes of the two children. It is interesting to imagine in what ways they resembled the rose trees, and to discuss their personal appearance The description given is chiefly concerned with the characters of the children The first point which is emphasised is that they were different, the second that they loved one another Then follows a description of some of their habits, bringing out further points in their characters by implication,—their fearlessness, gentleness and trust The exercises in the two following lessons are chiefly concerned with the use of comparison and contrast

There are blackboard sketches of a standard rose tree and a stag on page 295

Reading

A poor widow lived alone in a little cottage, in front of which was a garden, where stood two little rose trees one bore white roses, the other red. The widow had two children, who resembled the two rose trees one was called Snow-white and the other Rose-red. They were two of the best children that ever lived; but Snow-white was quieter and more gentle than Rose-red Rose-red liked best to jump about in the meadows, to look for flowers and catch butterflies, but Snow-white sat at home with her mother, helped her in the house, or read to her when there was nothing else to do. The two children loved one another so much that they always walked hand in hand, and when Snow-white said, "We will not forsake one another," Rose-red answered, "Never as long as we live", and the mother added, "Yes, my children, whatever one has, let her divide with the other" They often ran about in solitary places, and gathered red berries, and the wild creatures of the wood never hurt them, but came confidingly up to them The little hare ate cabbage leaves out of their hands, the doe grazed at their side, the stag sprang merrily past them, and the birds remained sitting on the boughs and never ceased their songs They met with no accident if they loitered in the wood and night came on; they lay down together on the moss and slept till morning, and the mother knew this, and was in no anxiety about them.

MRS CRAIK. *Snow-white and Rose-red*

Oral Work

Describe the rose trees.

What is the first thing you are told about the children?

What were the children's names?

From her name describe the hair, eyes and complexion of Snow-white.

From her name describe the hair, eyes and complexion of Rose-red

In what ways did Snow-white behave differently from Rose-red?

What is the next important thing you are told about the children?

How did they show their love for one another?

What used they to say to one another?

What did their mother tell them to do?

What sentence in the Reading tells you that the children were brave?

What sentence in the Reading tells you that the children were kind?

Why was their mother never anxious about them?

State all the things you learn about the children from their behaviour in the wood.

Written Work

I. Writing addresses.

Write on the blackboard:

mrs stewart walker 100 carisbrooke road barrasford northumberland

master percy rout linton house high street hythe kent.

mr james todd (butcher) 21 mervyn terrace croydon surrey

mr and mrs grennan 55 moscow road lawton cheshire.

The children may bring their own envelopes, with an old stamp affixed, for the purpose of writing addresses, or they may draw rectangles 4 in by 3 in. on their paper. Care should be taken to begin the address halfway down the envelope. Punctuation, and especially the punctuation of such abbreviations as *St*, *Rd*, *Av*, as well as *Mr.* and *Mrs*, should be discussed.

II. Choice of phrases.

Write on the blackboard:

in solitary places; till morning, in the garden; of the best children, together on the moss; in front of the cottage, on one tree; with no accident, on the other

Two little rose trees grew —— —— —— which stood —— —— —— —— —— White roses blossomed —— —— —— while red roses grew —— —— —— Snow-white and Rose-red were named after the rose trees. They were two —— —— —— —— that ever lived They often ran about —— —— ——, but they met —— —— ——. If night came on while they were in the wood, they would lie down —— —— —— —— and sleep —— ——.

The children must rewrite this passage, inserting the correct phrases chosen from those given above.

5.—SNOW-WHITE AND ROSE-RED

PART II

THIS lesson is a continuation of the previous one and may be opened by oral revision of the Reading.

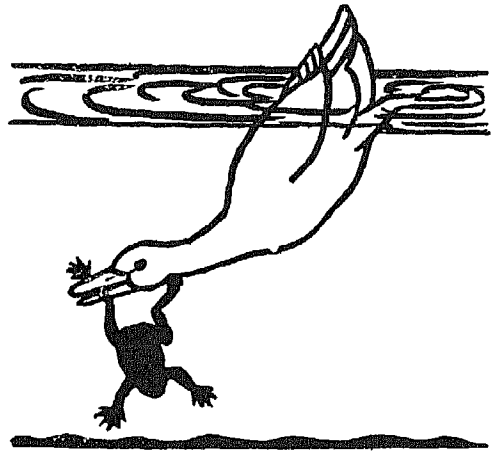
Written Work

I. Opposites.

Write on the blackboard

1 The *wild* creatures of the wood came confidingly up to them
2 The stag sprang *merrily* past them.
3 The birds *ceased* their songs
4 They *lay down* on the moss.
5 The car sped into a *noisy* street
6. A *polite* servant *opened* the door.
7. The road to London is *smooth* and *straight.*

The children must change the words in italics for others of opposite meaning

SKETCHES FOR THE BLACKBOARD

GIANT—*See page* 288
STAG—*See page* 293

DUCK—*See page* 312
ROSE TREE—*See page* 293

II. Synonyms.

Write on the blackboard:

1 Snow-white said, "We will never *forsake* one another"
2 They often ran about in *solitary* places
3. They met with no accident if they *loitered* in the wood
4 Before him towered a giant of *immense* size
5. The fretful child was *soothed* by her mother's gentle voice.
6 An engineer must be a *clever* workman
7 The youngest brother married the *beauteous* princess

The children must find as many words as possible which could be used to replace those in italics. The use of dictionaries should be encouraged The following list gives the simplest synonyms.—

1 desert, leave, abandon.
2. lonely, deserted, unfrequented.
3. lingered, waited, dawdled.
4 tremendous, huge, enormous, great, monstrous
5. calmed, quieted, hushed.
6. skilful, good, expert, sound, able.
7. beautiful, lovely, fair.

III. Appropriate comparisons.

Write on the blackboard.

The gnome popped out of his hole looking as clean as a new —— His eyes twinkled like ——, his lips and cheeks were as red as —— and his hair was whiter than ——. He sped like the —— towards the sea, forgetting the steep cliffs whose sides were as smooth as —— He came suddenly to their edge, toppled, and fell to the sand below like a —— He picked himself up, but his legs felt as heavy as ——, and he crept along to the boat as slow as any ——.

In this passage the simplest familiar comparisons are chosen These are. (1) clean as a new pin; (2) twinkled like stars, (3) as red as a rose, (4) whiter than snow; (5) sped like the wind; (6) smooth as glass; (7) fell . . like a stone, (8) as heavy as lead; (9) as slow as any tortoise (or snail).

IV. Writing sentences.

Write on the blackboard:

1. In four sentences describe the two sisters
2. Tell in what ways a cat resembles a dog.
3. Tell in what ways a cat is different from a dog.

6.—GOING FOR THE DOCTOR

Introduction

THIS simple narrative is used as a basis for three different exercises. The first is the correct writing of conversations, which the children should know well from the work of the previous year The second is the use of *but* as a word for joining sentences, and the third is the composition of clear directions

Reading

One night, a few days after James had left, I had eaten my hay and was lying down in my straw fast asleep, when I was suddenly awakened by the stable bell ringing very loudly I heard the door of John's house opened and his feet running up to the Hall. He was back again in no time He unlocked the stable door and came in, calling out, "Wake up, Beauty, you must go well now, if ever you did!" and almost before I could think, he had placed the saddle on my back and the bridle on my head He just ran round for his coat, and took me at a quick trot up to the Hall door The Squire stood there with a lamp in his hand

"Now, John," he said, "ride for your life,—that is, for your mistress's life; there is not a moment to lose Give this note to

Doctor White Give your horse a rest at the inn, and be back as soon as you can "

John said, "Yes, sir," and was on my back in a minute The gardener who lived at the lodge had heard the bell ring, and was ready with the gate open Away we went through the park, through the village, and down the hill till we came to the toll-gate John called very loudly and thumped upon the door, the man was soon out and flung open the gate.

"Now," said John, "do you keep the gate open for the Doctor, here's the money," and off we went again.

There was before us a long piece of level road by the riverside John said to me, "Now, Beauty, do your best," and so I did, I wanted neither whip nor spur, and for two miles I galloped as fast as I could lay my feet to the ground I don't believe that my old grandfather, who won the race at Newmarket, could have gone faster When we came to the bridge John pulled me up a little and patted my neck. "Well done, Beauty! good old fellow," he said He would have let me go more slowly, but my spirit was up, and I was off again as fast as before.

The air was frosty, and moon bright, and it was very pleasant. We went through a village, through a dark wood, then uphill, then downhill, till after an eight miles' run we came to the town On through the streets we went and into the Market Place All was quite still except for the clatter of my feet on the stones—everybody was asleep. The church clock struck three as we drew up at Doctor White's door

ANNA SEWELL *Black Beauty*

ORAL WORK

Who is telling this story?

What is the name of the teller of the story?

What do you think was John's business?

Why is the story written in short sentences?

What does the first paragraph tell you?

Why was John told to "ride for his life"?

Do you think this is a story of modern times?

How would John ride to the Doctor nowadays?

What is a lodge?

Who lived in the lodge?

What is a toll-gate?

What do the drivers of all vehicles have to do at a toll-gate?

Tell what route John took to get to the town

What do you know of races at Newmarket?

What time of the year is spoken of in the story?

How far was the town from the Hall?

Are the streets of towns usually paved with stones to-day?

What sort of stones would these be?

WRITTEN WORK

I. Dictation.

Dictate from the "Reading" the last paragraph beginning: "The air was frosty" to the end.

II. Conversations.

Write on the blackboard

the squire stood at the door holding the lamp. now, john, he said, ride for your life, and give this note to doctor white.

yes, sir, replied john, and set off.

who is there? called out the man at the toll-gate.

come quickly! answered john, here is the money.

then john said to me, now beauty, do your best

The children must rewrite the passage, putting in all the necessary capitals and inverted commas

III. Joining sentences with "but."

First discuss with the children the use of the word *but* We may say, "Henry fell down *and* hurt his leg," because these two thoughts follow each other But we say "Henry fell down *but* he was not hurt,"

because the second thought is a surprise,—we expected that Henry *would* be hurt if he fell down The word *but* is therefore used when the second sentence gives us a surprise. Words which are repeated must be omitted, as in the cases when *and* is used.

Write on the blackboard:

1. I had eaten my hay. I was lying down in the straw fast asleep.
2. I expected to sleep all night. I was awakened by the stable bell
3. John unlocked the stable door John came in.
4. It was in the middle of the night. I had to go out.
5. The gardener heard the bell The gardener had the gate open.
6. John called loudly John thumped upon the door.
7. He wished me to go more slowly My spirit was up, and I was off as fast as before

The children must join these sentences with either *and* or *but*,—sentences 1, 3, 5 and 6 are joined by *and*.

IV. Writing directions.

Write on the blackboard

1. Tell your brother to go at once to the Post Office and take out £2 from the Savings Bank, because you must go away by train to see your aunt who is ill
2. Tell your friend to take your bicycle to the garage and get the puncture in it mended as soon as possible, because you must ride to take some eggs to your cousin in the afternoon.
3. Ask your sister to go to the Post Office and send a telegram to your father telling him to return immediately because your mother is ill.

The children must first study the second paragraph in the Reading as a model, and then write the given directions, beginning each with the words, *I said to* . .

7.—HE, SHE AND IT

Introduction

THE study of pronouns is spread over three lessons, the first dealing with the series *he*, *she* and *it*, the second with the series *you* and *I*, and the third with the plural series *we* and *they*.

Before the lesson it will be necessary to tell the children that the four creatures mentioned in Exercises I and II are spoken of as if they were people,—the *Caterpillar* as a lady, and the *Dog*, *Tom Cat* and *Lark* as gentlemen

Therefore, in place of the proper name *Caterpillar*, we may use the pronouns *she*, *her*, *herself*, in this way:—The Caterpillar lived on a cabbage; the birds were always ready to eat *her*, so *she* hid *herself* under a leaf and tended her eggs there.

In place of the proper names *Dog* and *Tom Cat*, we may use the pronouns *he*, *him*, *himself*, in this way —The Dog could not always please *himself*, *he* had to guard the house and eat what his master gave *him*

The pronoun *it* is used for the names of things without life, such as a *box* or a *bag*, and for creatures when we do not speak of them as persons.

N B The words *his*, *my*, *your*, *our*, and *her* (in certain cases) are not now considered as pronouns, but as adjectives.

A blackboard sketch of a cabbage caterpillar is given on page 305.

Oral Work

Let the children substitute a pronoun for each of the italicised names in these sentences, rearranging the order of the words where necessary —

1. *Mary* put *the book* on the table
2. Pick up *the hat*.
3. John has taken *the dog* for a walk
4. *Mildred* brought the bag and *Peter* took *the bag* home.
5. *Harry* has taken *the cricket bat*.

6 Where is my pen? There is *the pen* on the table
7 Father gave *John the penknife.*
8. Why did *father* not give *the penknife* to me?
9 *Mary* went out in the rain in her new hat and *the hat* is spoilt.

WRITTEN WORK

I. Choice of pronouns.

Write on the blackboard:

But there was still a difficulty,—whom should the Caterpillar consult? There was the shaggy Dog who sometimes came into the garden But (he, himself) was so rough!—(himself, him, he) would most likely whisk all the eggs off the cabbage leaf with one brush of his tail, if (she, her, herself) called (he, him) near to talk to (she, her, herself), and then (her, she) would never forgive (herself, she, her) There was the Tom Cat, to be sure, who would sometimes sit at the foot of the apple tree, basking (he, himself, him) and warming his fur in the sunshine; but (he, him) was so selfish and indifferent!

The children must write the passage selecting the correct pronouns.

II. Substitution of pronouns.

Write on the blackboard:

Now in the neighbouring cornfield there lived a Lark, and the Caterpillar sent a message to *Lark*, to beg *Lark* to come and talk to *Caterpillar*, and when *Lark* came *Caterpillar* told *Lark* all her difficulties, and asked *Lark* what *Caterpillar* was to do, to feed and rear the little creatures so different from *Caterpillar*

Soon afterwards the Lark went singing upwards into the bright blue sky. By degrees the Lark's voice died away in the distance, till the green Caterpillar could not hear a sound. It is nothing to say *Caterpillar* could not see *Lark*; for, poor thing! *Caterpillar* never could see far at any time, even when *Caterpillar* reared *Caterpillar* up most carefully, which *Caterpillar* did now. But it was of no use, so *Caterpillar* dropped upon her legs again, and resumed her walk round the eggs

The children must substitute pronouns for the nouns in italics.

III. Gaps for pronouns.

Write on the blackboard:

1. Mary cannot find her vase, but —— said —— left —— on the table
2 I cannot see Joan, have you met ——?
3. My pen is not here for I took —— to school
4 Neither have I my ruler, because Henry asked for ——, and I gave —— to ——
5 Molly wants my belt so I am just going to get —— for ——.

The children must write these sentences filling the gaps with the appropriate pronouns.

8.—WHO AND WHICH

INTRODUCTION

THE children have already learnt the use of *and* and *but* for joining sentences, and are now to discover two more equally useful words for the same purpose,—*who* and *which* *Who* is always used to mean a person. We may say: John has a brother John's brother is a policeman. But it is easier to say —John has a brother *who* is a policeman. The word *who* stands in place of *John's brother.*

The word *which* is used in the same way as *who*, except that *which* always means a thing, and not a person.

ORAL WORK

The children must supply either *who* or *which* in the gaps in these sentences.

1. I have a sister called Millicent —— cooks well

2. That soldier —— carries the sword is a brave fellow.
3. That house —— you see on the hill belongs to rich people
4. I have a friend —— has been to France.
5. Amy owns that clock —— stands on the mantelpiece
6. Robert has a dog —— can beg for sugar
7. Dorothy, —— sews neatly, is helpful to her mother
8. Rooks love oak trees —— are full of acorns
9. Little Red Riding Hood took eggs to her grandmother —— was ill
10. I have a bag —— has my initials printed on it

WRITTEN WORK

I. Joining sentences with "who".

Write on the blackboard

1. Dick was a ploughboy Dick used to drive the cows to pasture every morning.
2. Mary has a cousin Her cousin is a soldier
3. As I went along the road I saw a child The child had hurt his foot
4. The conductor of a bus is a man. The man takes our fares
5. I have an elder brother My brother works in London.
6. There was a little man He had a little gun.
7. The fairies are light-hearted creatures They dance and sing all night in the meadows

The children must rewrite each pair of sentences, joining them with *who*.

II. Joining sentences with "which".

Write on the blackboard

1. I picked up the book. It had fallen on the floor
2. My uncle read me a ghost story It kept me awake all night.
3. As I went to school I saw the red cart. It brings our parcels from the Post Office.
4. It had been raining, so I took off my stockings and shoes They were very wet
5. In the field I saw the aeroplane. It had passed over our town yesterday.
6. Its body and wings were painted silver and by its side was a step ladder The ladder is used by the passengers

The children must rewrite each pair of sentences, joining them with *which*

III. Joining sentences with either "which" or "who".

Write on the blackboard

1. The brothers flew up high among the clouds with their dear sister, —— was still sleeping.
2. Under each arm he holds an umbrella, one, —— has pictures painted on it, he holds over children —— are good, and it makes them have delightful dreams, the other, —— has nothing on it, he holds over children —— are naughty, so that they sleep heavily
3. There was once a merchant —— was so rich that he might have paved with silver the whole street in —— he lived
4. Fruit —— shone like gold hung from the trees
5. Would you like to hear about Humpty Dumpty —— fell downstairs?
6. Over her shoulders she carried a bundle of faggots —— she had collected in the wood
7. Presently they came to a shop —— appeared far more beautiful than the rest
8. There was a little girl called Fanny, —— had the misfortune one day to bite her tongue
9. We made for a clump of trees —— we saw at a little distance

The children must fill the gaps in these sentences with either *who* or *which*

9.—ROBINSON CRUSOE

ROBINSON CRUSOE AT HOME

(Class Picture No 152 in the portfolio)

INTRODUCTION

THE children should first be allowed to examine and discuss the picture It is likely that most of them will know something of the story of Robinson Crusoe and a very profitable lesson in speech training can be spent by the children telling what they remember about the story

ORAL AND WRITTEN WORK

I Let the children answer in complete sentences the following questions:

1 What is the title of the picture?
2. How is Robinson Crusoe's home different from your home?
3 Where do you think Crusoe was living?
4 What do you notice about his clothes?
5 Where did he get his clothes?
6 Where did Crusoe sleep?
7 What pets had Crusoe?
8 What is Crusoe doing in the picture?
9 Which of Crusoe's pets could speak a few words to him?

10. How may you know from the picture that the island on which Crusoe was wrecked had a warm climate?
11. Of what use to Crusoe were the two guns?
12. What tools can be seen in the picture?

II. Questions to promote understanding.

Write these questions on the blackboard, together with any others that have arisen in the course of the discussion on the picture

1. Tell one story you know about Robinson Crusoe.
2. Tell what you know about a cave
3. Tell how Robinson Crusoe made his clothes.
4. Tell what you know about parrots.
5. Tell what you know about goats
6. Tell how you would make a hammock.

The children must write complete answers to these questions, using the dictionary, or other books of reference, if required.

III. Imaginative writing.

1. Tell the children to pretend that two of them went to spend a week's holiday in a cave by the sea Then tell them to write a letter to their sister, brother or friend, describing how they travelled to the cave, what things they took with them for the week's holiday and how they spent their time.

2. Read to the children the account told in the Reference Book of Crusoe's description of himself, then let the children write their own accounts of the appearance of Crusoe as he walked about the island.

3. Let the children pretend that someone has given them a parrot and they are to describe the bird, how they fed it and how they taught it to speak

4. Tell the children to pretend that they made a visit to Robinson Crusoe in his cave. Then tell them to write a short conversation which each had with him.

10.—ROSAMOND'S EXCUSES

Introduction

THE following extract will form a model for exercises in conversation The formal nature of the conversation should be a reminder that scrappy work is not good English, and should encourage the pupil to give balanced sentences, as far as he is able.

Blackboard sketches of a geranium and a watering-can are given on page 305

Reading

"Rosamond, you did not water your geranium last night," said her mother.

"Yes, mamma,—no, mamma, I mean, because I could not find the rose of the little green watering-pot."

"You did not look for it, I think, my dear It was on the shelf, directly opposite to you, as you go into the greenhouse"

"That shelf is so high above my head that it was impossible I could see what was upon it"

"But though the shelf was so high above your head, you could have seen what was upon it, if you had stood upon the stool, could you not?" said Godfrey.

"But the stool was not in the greenhouse"

"Could you not have gone for it?" said Godfrey.

"No, I could not," replied Rosamond, "because it was very hot, and mamma had just desired me not to run any more *then*, because I was too hot."

"Run! But could you not have walked, Rosamond?"

"No, brother, I could not,—I mean that if I walked it would have done no good, because one of the legs of the stool is loose, and I could not have carried it, and besides, it is very dangerous to stand upon a stool which has a loose leg Papa himself said so, Godfrey, and the other day he told me not to stand upon that stool. Besides, after all, why should I have gone for the stool?

How could I guess that the rose of the watering-pot was upon that high shelf when I did not see the least glimpse of it?"

"Good excuses, Rosamond," said Godfrey, smiling, "and plenty of them."

"No, not good excuses, brother," cried Rosamond,—"only the truth Why do you smile?"

"Well, not *good* excuses, I grant," said Godfrey.

"Not excuses at all," persisted Rosamond "I never make excuses"

Oral Work

Name the people between whom this conversation took place

What was the subject of their conversation?

What is an *excuse*?

Could Rosamond have watered the geraniums without the rose of the little green watering-pot?

Do you think Rosamond was right when she said that she never made excuses?

Written Work

I. Dictation.

Dictate from the "Reading" the passage beginning. "'Good excuses, Rosamond'," to the end

II. Conversations.

Write on the blackboard

1. Write a conversation between Mrs. Jones and Mr Griffiths, when Mrs. Jones comes to his shop to buy three pounds of tomatoes
2. Write a conversation between Mr. Brown and a policeman, when Mr. Brown was told to get off his bicycle because he did not see the policeman's signal to stop at the cross roads.

The children must use their imagination over these conversations and express themselves as freely as possible It is helpful if the teacher puts up on the board a list of words used in conversations, such as *said, remarked, observed, asked, replied, answered*, and promotes oral discussion to acquaint the children with the exact meanings of these words.

III. Arrangement of phrases.

Write on the blackboard.

1 was so inconsolable that he shut himself up, where he spent his time in knocking his head against the wall, who had lost his wife; in a little cabinet; a powerful and wealthy king; until his courtiers were afraid he would kill himself
2 and allowed entrance to all his subjects; they accordingly placed stuffed mattresses on the walls; trusting that something would be said to alleviate his grief, who desired to visit him
3. who wept and sobbed so much, covered from head to foot in a long crape veil; at last a lady presented herself, that the king noticed her.
4. to console him, that she did not come; but rather to encourage his grief, she told him
5 and to talk of his dear wife, that they talked their sorrow quite away; the king began to weep in company; in fact they talked so much

The children must rearrange these phrases to make sense, punctuate them, and write them one after the other in essay form to make a paragraph.

11.—YOU AND I

Introduction

THIS is the second lesson on pronouns. It may be introduced by the following explanation

When a baby first learns to talk, he says "Baby wants a cake." As he grows older he

learns to say, "*I* want a cake." The pronouns *I*, *me*, *mine*, *myself*, all mean the person speaking in this way: There is my ball. Please give it to *me* for it is *mine*, and *I* want it *myself*.

The pronouns *you*, *yours*, *yourself* mean the person spoken to, in this way Have *you* the hymn book? This one is *yours* and you must carry it *yourself*

The extracts given in Exercises 1 and 2 will furnish material for oral discussion, as well as practice in the pronouns given

Blackboard sketches of a lute and a drum are given on page 305.

Written Work

I. Choice of pronouns.

Write on the blackboard:

There was once an ass who had run away from his master When he had gone a little way he found a hound lying by the side of the road, panting

"Now, Holdfast, why are (yours, you, yourself) so out of breath?"

"Oh dear!" said the dog, "now (me, myself, I) am old, (I, mine, me) get weaker every day, so my master told (I, me, mine) to take (me, myself, I) off, or he would have (I, mine, me) killed How am (me, I, myself) going to get a living?"

"(me, I, mine) will tell (you, yours, yourself)," said the ass "(I, mine, me) am out of work (me, mine, myself), and am going to Bremen to become a town musician. (you, yours, yourself) may as well go with (I, me, mine) and take up music too (I, me, mine) can play the lute and (your, yours, you) can beat the drum"

The children must write the passage, selecting the correct pronouns

II. Gaps for pronouns.

Write on the blackboard:

As the princess wept she heard a voice saying to her,

"What ails ——, king's daughter? your tears would melt a heart of stone"

And when she looked to see where the voice came from, there was nothing but a frog stretching his thick ugly head out of the water.

"Oh, is it ——, old waddler?" said she; "—— weep because my golden ball has fallen into the well"

"Never mind, do not weep," answered the frog, "—— can help ——; but what will —— give —— if —— fetch up your ball again?"

"Whatever —— like, dear frog," said she, "any of my clothes, pearls and jewels, or even the golden crown that —— wear."

"Your clothes, your pearls and jewels, and your golden crown are not for ——," answered the frog, "but if —— would love ——, and have —— for your companion and playfellow, and let —— sit by —— at table, and eat from your plate, and drink from your cup and sleep in your little bed, if —— will promise —— all this, then —— will dive below the water and fetch —— your golden ball again"

"Oh yes," she answered, "—— will promise it all, whatever —— want, if —— will only get —— my ball again."

The children must fill the gaps with the correct pronouns.

12.—SINGULAR AND PLURAL

Introduction

LESSONS 12 and 16 are a revision of the work on "Singular and Plural" which was covered in the previous year's course

Written Work

I. Singular and plural nouns.

Write on the blackboard:

coat, bricks, babies, lady, witches, bushes, brush, girls, boys, flies, fairies, puppy.

CABBAGE CATERPILLAR—*See page* 298
LUTE—*See page* 304
GERANIUM—*See page* 302

POPPY AND WHEAT—*See page* 307
DRUM—*See page* 304
WATERING-CAN—*See page* 302

The children must change all the singular nouns to plural nouns and vice versa.

II. Is and Are.

Write on the blackboard:

1. —— that my ball on the table?
2. The winner —— a thin boy, and there —— the four boys who came in second.
3. My hat —— in the hall and so —— my coat, but my gloves —— upstairs.
4. Where —— the lady who called yesterday?
5. The ladies —— near the house which —— at the end of the garden.
6. Where —— the tablespoon? There —— too many potatoes on my plate.
7. The three girls —— in the garden, but their baby sister —— in bed.

The children must fill the gaps in these sentences with either *is* or *are*.

III. Was and Were.

Write on the blackboard:

1. The hat was black.
2. The hen was fat.
3. The baby was thin.
4. The chicken was tough.
5. The fairy was tenderhearted.
6. The box was square.
7. The horse was tired.

The children must change these sentences into the plural.

IV. Skeleton story.

Write on the blackboard:

Three children — skating — ice — thaw — board on a post — DANGER — took no notice — suddenly — crack — splash — disappeared — shriek — man — stick — rescued — hurried home — bed — blankets — hot water bottles

The children must complete the above skeleton story.

13.—PEOPLE WE KNOW

Introduction

THIS lesson will appeal to the children and may easily be varied for use at any time by selecting different characters

Written and Oral Work

I. The coal-heaver.

Write on the blackboard.

1. who used to come; with a little coal cart; there was an old man up our street.
2. a coal-heaver's hat, and looked rough and black, he wore
3. like two good partners; used to plod together, who understood each other, he and his old horse, along the street
4. of his own accord, where they took coal of him, the horse would stop; at the doors.
5. he used to keep; towards his master; one ear bent.
6. up the street; could be heard, long before he came near; the old man's cry
7. "Old Ba-a-ar Hoo", I never knew, for it sounded like that, but the children called him; what he said

The children must arrange these phrases in the correct order, punctuate them, and write them one after another in essay form.

II. Descriptions of people.

1. Discuss with the children all they know about the **milkman** Make a list on the blackboard of all the words and phrases used in connection with the milkman. Here are some of the most familiar of these words and phrases—

Early in the morning; milk the cows; pails, bottles; cans; cart, barrow, twice a day; from door to door, housewives, jugs; clean, fresh; sweet, sour

When the subject has been fully discussed let the children write a short essay (ten sentences) on the milkman in a given time (ten minutes)

2. Discuss the **postman** in the same way and let the children write about him.

III. Descriptive answers.

Write on the blackboard·

1. What does he do?
2. What does he wear?
3. Where does he live?
4. What sort of man must he be?

Let the children apply these questions in turn to a **soldier,** a **sailor** and a **miner,** and answer them in full sentences. The four answers together should give a brief description of the character of the man selected

14.—THE GRASSHOPPER

Introduction

THE Reading for this lesson is an example of scientific writing. It forms a basis for other accurate descriptions which draw upon the children's powers of observation and exact expression

A blackboard sketch of a grasshopper is given in Vol I, page 245.

Reading

A grasshopper had built her little home on the lawn by digging a hole in the border, and there she sat at her own front door at midday, warming herself in the bright sunshine. She put out her head and looked about her to see if all was safe, and then she slipped out, polished her feelers, and began to chirp Her song echoed across the adjoining wheatfield, so that some children, picking cornflowers and poppies there, heard the chirping, and wondered where the pretty music came from But they never saw the little musician, for as soon as they followed the sound of the chirping and came near, it suddenly stopped The grasshopper was afraid of them, and had slipped into her hole, where she remained in safety till they had passed. She does the same if a crow, magpie, or any other hungry bird approaches, for she will have nothing to do with such creatures, keeping herself to herself or to her own kind.

In the field she nibbles the tip of a leaf, gnaws a fallen grain of corn, or catches a

tiny grub She does no harm to the farmer, and in return for the little meal she takes from his field she plays music for him all the summer through, that he may be twice as merry at his work

But how does she play her tune? She does not sing with her throat like the lark, nor with her mouth like the frog in the village pond, but with her legs she strokes the edge of her wing, just as a real musician plays with his bow on the fiddle strings, and she needs no book to play from, for she knows her tunes by heart.

From the other side of the field her friend answers, playing with *her* legs on *her* wing, both fiddling away together in a dainty duet, or one after the other, all through the summer's day.

Oral Work

Where does the grasshopper build her home?
What other insects have feelers?
How does a grasshopper polish her feelers?
What were the children doing in the wheatfield?
Why is the grasshopper called a "little musician"?
Why did the children never see the grasshopper?
Why do you think the grasshopper will have nothing to do with hungry birds?
Of what does the second paragraph tell you?
Of what does the third paragraph tell you?
How does the grasshopper play her tune?
How does a fiddler play his tune?
What does the fourth paragraph tell you?

Written Work

I. Manner of beginning and ending letters.

Let the children write the modes of address and conclusion of letters to the following persons: (*a*) The greengrocer. (*b*) Mother (*c*) Teacher (*d*) Sister (*e*) Aunt (*f*) Uncle. (*g*) Friend.

They may choose among the following modes of address·

(1) Dear Sir (2) Dear Madam.
(3) Dearest —— (4) My Dear ——
(5) Dear ——.

They may choose among the following modes of conclusion.

(1) I am,
Yours faithfully,
(2) Your loving son, (daughter, friend, niece, nephew)
(3) I am,
Yours truly,
(4) Your affectionate son, (daughter, friend, niece, nephew)

II. Accurate description.

Write on the blackboard

1. A grasshopper
2. A spider
3. A mouse.

The children are required carefully to describe these creatures, arranging the work in three paragraphs under these headings (*a*) What it is (*b*) Where it lives. (*c*) What it does

III. Words which represent sounds.

1. Let the children write all the words they can find to represent the sounds that birds make (*For example* chuck, chirp, chirrup, crow, twitter, gurgle)
2. Let the children write down all the words they can find to represent the sounds that animals make. (*For example*: bleat, bark, mew, neigh, squeak, grunt, purr, growl, roar, whine, whinny, moo, hiss.) They may then add the name of the animal to each of these words (*For example*: sheep bleat, dogs bark, etc)

IV. Choice of verbs.

Write on the blackboard:

A grasshopper had —— her little home on the lawn. She put out her head and ——

about her to see if all was safe, then she —— out, —— her feelers, and began to chirp Her song —— across the adjoining wheat-field, so that some children —— the chirping, and —— where the pretty music came from But they never —— the little musician, for as soon as they —— the sound of the chirping and came near, it suddenly ——

The children must fill the gaps with verbs which must be as nearly like those in the Reading as they can remember.

15.—WE AND THEY

Introduction

THIS is the third lesson on pronouns and deals with the plural forms of those already studied. It may be introduced by the following explanation The plurals of the *he* and *she* series are *they* and *them*, which are used when two or more persons are meant, in this way The teacher called out three *children* and told *them* to clear their desks. *They* said, "Yes, sir," and sat down again

The plurals of the *I* series are *we, us, ours* and *ourselves* The plurals of the *you* series are *you, yours* and *yourselves*. These pronouns are used in this way: In the game against *you, we* kept our heads but *you* lost *yours*, and the victory was given to *us* You played badly among *yourselves* while *we* tried to keep *ourselves* in the correct formation on the field

The extracts chosen for the study of pronouns will also supply material for oral discussion A blackboard sketch of a wolf is given in Vol I., page 149, and also in Vol II., page 291

Written Work

I. Gaps for pronouns.

Write on the blackboard

Little Two Eyes lived happily for a long time Once two poor women came to the castle and begged alms Little Two Eyes looked into their faces and recognised Little One Eye and Little Three Eyes, who had fallen into such poverty that —— had to wander about, and seek their bread from door to door Little Two Eyes, however, bade —— welcome, and was very good to ——, and took care of ——, for —— both repented from their hearts the evil —— had done to their sister in her youth

The children must fill the gaps with the correct pronouns

II. Substitution of pronouns.

Write on the blackboard:

So the wolf laid his paws on the window sill, and when the goslings saw that *the paws* were white, *the goslings* believed it was all right and opened the door to *the wolf*, and who should come in but the wolf!

The goslings screamed out and tried to hide *the goslings*. But the wolf seized *the goslings*, and stood on no ceremony with *the goslings*, one after another *the wolf* gobbled *the goslings* all up When *the wolf* had eaten his fill, *the wolf* strolled forth, laid *the wolf* down in the green meadow under a tree, and went fast asleep.

The children must substitute pronouns for the nouns in italics

III. "We" and "they".

Let the children write five sentences containing the following pronouns. (*a*) we, they, (*b*) us, them, (*c*) ours, yours, (*d*) ourselves, (*e*) yourselves

16.—SINGULAR AND PLURAL

Written Work

I. Singular and plural nouns.

Write on the blackboard

birds, star, branches, porch, face, bridge, noses, pennies, duty, days, monkeys, wolves, loaf, wives.

The children must change all the singular nouns into the plural and vice versa.

II. Has and Have.

Write on the blackboard:

1. My cat —— a white tail but her two kittens —— black ones.
2. My brother —— a cricket bat, my four sisters —— dolls
3. The horse —— a glossy coat and so —— the dog.
4. A bicycle —— two wheels but most cars —— four.
5. My rabbits all —— long ears, but only one —— long hair.

The children must fill the gaps with either *has* or *have*.

III. Plural and singular.

Write on the blackboard:

1. The babies have chickenpox
2. The hens have been killed
3. The hayricks have been burnt down.
4. The boys are noisy.
5. The puppies were fat.
6. The umbrellas are here.

The children must convert these sentences into the singular.

IV. Skeleton story.

Write on the blackboard.

Mouse — under the floor — one night — in search of food — kitchen — remains of supper — table — cheese — bacon rind — splendid feast — suddenly — cat — entered the room — squeaked — flurry — ran for his life — round and round — mousehole — never again.

The children must complete the above skeleton story.

17.—TOMMELISE

Introduction

THIS simple narrative is used as a basis for the study of the paraphrasing of expressions, the apostrophe, and the writing of directions.

A blackboard sketch of the birth of Tommelise is given on page 315.

Reading

Once upon a time there lived a young wife who longed exceedingly to possess a little child of her own; so she went to an old witch-woman and said to her, "I wish so much to have a child—a little tiny child—won't you give me one, old mother?"

"Oh, with all my heart!" replied the witch. "Here is a barleycorn for you, it is not exactly of the same sort as those that grow on the farmer's fields, or that are given to the fowls in the poultry yard, but do you sow it in a flower pot, and then you shall see what you shall see!"

"Thank you, thank you!" cried the woman, and she gave the witch a silver sixpence, and then having returned home, sowed the barleycorn as she had been directed, whereupon a large and beautiful flower immediately shot forth from the flower pot. It looked like a tulip, but the petals were tightly folded up,—it was still in bud

"What a lovely flower!" exclaimed the peasant woman, and she kissed the pretty red and yellow leaves, and as she kissed them the flower gave a loud report and opened It was indeed a tulip, but on the small green pointal in the centre of the flower there sat a tiny girl, so pretty and delicate, but her whole body scarcely bigger than the young peasant's thumb. So she called her Tommelise

A pretty varnished walnut shell was given her as a cradle, blue violet leaves served as her mattresses, and a rose leaf was her coverlet. Here she slept at night; but in the daytime she played on the table. The peasant wife had filled a plate with water, and laid flowers in it, their blossoms bordering the edge of the plate while the stalks lay in the water; on the surface floated a large tulip leaf, and on it Tommelise might sit and sail from one side of the plate to the other, two white horse hairs having been given her for oars. That looked charming! And Tommelise could sing too, and she sang in such low sweet tones as were never heard before.

HANS ANDERSEN. *Fairy Tales.*

ORAL WORK

What did the young wife wish?
What did she say to the witch-woman?
Tell all you know about witches.
What directions did the witch-woman give to the young wife?
Tell what happened to the barleycorn.
Where did the young wife find Tommelise?
Describe the cradle of Tommelise
How did Tommelise go sailing?

WRITTEN WORK

I. Dictation.

Dictate from the Reading the fourth paragraph, beginning, "'What a lovely flower!'"

II. Paraphrasing expressions.

Write on the blackboard:

1 longed exceedingly.
2 it is not exactly of the same sort.
3. as she had been directed
4 immediately shot forth.
5. gave a loud report.
6. small green pointal in the centre.

The children must express each of these thoughts in simpler words.

III. Use of the apostrophe.

Write on the blackboard·

(1) won't, (2) I'll, (3) You'll, (4) can't; (5) it's.

The children must write out these abbreviated words in full.

IV. Writing directions.

Let the child study the second paragraph in the Reading and then write the following directions in the same way. Let them begin each answer with the words, (*Name*) *said to* (*Name*). Write the directions on the blackboard as follows

1. Tom told Mary to go to the hen house and collect five eggs and take them over the hill to Mrs. White, who lived in the cottage there
2. Mother asked Philip to walk over to Mr. Snow's house and fetch the umbrella which she lent him yesterday.
3. Mrs. Smith told Mrs. Brown to take her blackberries home and make them into jelly at once She also told her that if she added some apple to the jelly it would make it much more delicious.

18.—FAITHFUL UNTO DEATH

INTRODUCTION

THE painter of this famous picture, Sir Edward John Poynter, Bt. (1836-1919), held many high administrative positions in the world of British art. As director of the National Gallery he edited the great *Illustrated Catalogue of the National Gallery*, in which every picture in the collection is reproduced. On the death of Sir John Millais, Poynter was elected president of the Royal Academy, and was knighted.

This picture, No. 153 in the portfolio, is more difficult for children to study than the former, on account of the knowledge required as a setting for it. This knowledge is supplied to the children in Exercise 1, where the story is told to them in jumbled phrases. Studied as set out in the Exercises, the picture provides an interesting and instructive lesson

A blackboard sketch of a volcano is given on page 315.

WRITTEN WORK

I. The story of the destruction of Pompeii.

Write on the blackboard.

1. which ever and again awakes; from the fiery centre of the earth; in the land of Italy, to throw out streams of molten rock, stands a smoking mountain called Vesuvius.

2. such as this; a smouldering mountain; is called a volcano.
3. a race of people; over a thousand years ago; lived in Italy; called the Romans
4. and they built two fine cities; that Vesuvius was a volcano, on the wooded slopes of the mountain; the Romans did not know
5. from her long rest, one terrible August, Vesuvius awoke
6. lightning flashed, the earth shook and rumbled, darkness fell over her; and the top of the volcano was blown off
7. poured down the mountain sides, which stood there, burying the two beautiful Roman cities, streams of molten rock
8. or were burnt to death; of their houses; the terror-stricken people, were crushed by the falling stonework; by the molten rock.
9. took refuge in boats; those who escaped, into the sea, that were rowed far out,
10. that the end of the world had come, many believed.

II. Study of the picture.

Let the children examine the picture. Tell them that it shows a scene in one of the Roman cities at the time of the eruption of Vesuvius

Write on the blackboard:

1. What part of a building do you see?
2. Who stands in the front of the picture?
3. How is this man dressed?
4. What does his dress show him to be?
5. What is his duty?
6. What is happening beyond the gates?
7. Why are two people lying on the ground?
8. From what are the man and woman protecting themselves?
9. Whom else can you see in the background of the picture?
10. With what is the ground littered?
11. Why is the picture called *Faithful Unto Death?*

Let the children look at the picture and answer these questions about it.

III. Imaginative narrative.

Tell the children to pretend that they were living in one of the Roman towns during the eruption of Vesuvius. They must give an account of what happened, using all the information they can find from Exercises I. and II., as well as from other sources.

Write on the blackboard:

1. Where you lived.
2. The first things you noticed which showed that the volcano was awake
3. What you saw and heard during the eruption.
4. How you escaped.

The children must write their narratives in four paragraphs under these headings. Even the dullest child will be able to write one sentence under each.

19.—BIRDS AND BEASTS

Introduction

THIS is a revision lesson. It covers work in the conversion of singular to plural, and vice versa; exercises on *their* and *there*, and the division of sentences into subject and predicate, all of which have been dealt with in the work of the previous year.

A blackboard sketch of a duck is given on page 295

Written Work

I. Singular into Plural.

Write on the blackboard:

The otter is bigger than a cat and cleverer than a fox. He can swim as fast as a fish

From the picture by Sir Edward J Poynter, Bt, P R A] [*By permission of the Corporation of Liverpool*

FAITHFUL UNTO DEATH

(Class Picture No 153 in the portfolio)

and dive to the bottom of the stream He steals the carp in the pond and the trout in the river, and even ducks, both old and young, are not safe from his attacks.

The children must rewrite this passage, changing the word *otter* to *otters*, and making all the other necessary alterations

II. Plural into singular.

Write on the blackboard·

The ducks had their nests on the little rush island in the middle of the pond, where the fox could not reach them, and they were careful not to venture too near the shore, for Mr. Fox dearly loves a meal of young ducks, and lies hidden ready to pounce upon them at any moment.

The children must rewrite this passage, changing the word *ducks* to *duck*, and making all the other necessary alterations.

III. Their and there.

Write on the blackboard·

The two stags looked angrily at each other, and pawed the ground with —— hoofs, so that the poor little field mice who lived —— had to suffer for —— bad temper. And then these two quarrelsome fellows ran at each other till —— horns shivered and cracked Each one tried to push the other out of the forest, although —— was room and food enough for both. When at last they were tired out, and wished to return peaceably to —— lair, it was too late. The antlers of —— horns had become so twisted together that they could not undo them So it came about that —— great horns brought them to grief, and, hopelessly entangled, they were forced to remain ——, and perished miserably of hunger.

The children must fill the gaps with either *their* or *there*

IV. Subject and predicate.

Write on the blackboard:

1. The wild rabbit lives in a sandy hillock in the wood.
2. A sheep loves to live in company with its fellows.
3. The big savage Polar bear is a greedy fellow
4. For the first day the whole dozen goslings sat happily together in the nest under their mother's wings.
5. When autumn came the goslings had grown big, with proper feathers

The children must divide these sentences into subject and predicate

20.—JOINING SENTENCES

Introduction

THIS lesson provides revision exercises on the use of *and* or *but*, and *who* or *which.* In addition, there is an exercise which calls for thought on the framing of questions; the skeleton of a story is also provided as the basis for a short essay

Written Work

I. Joining sentences with "and" or "but".

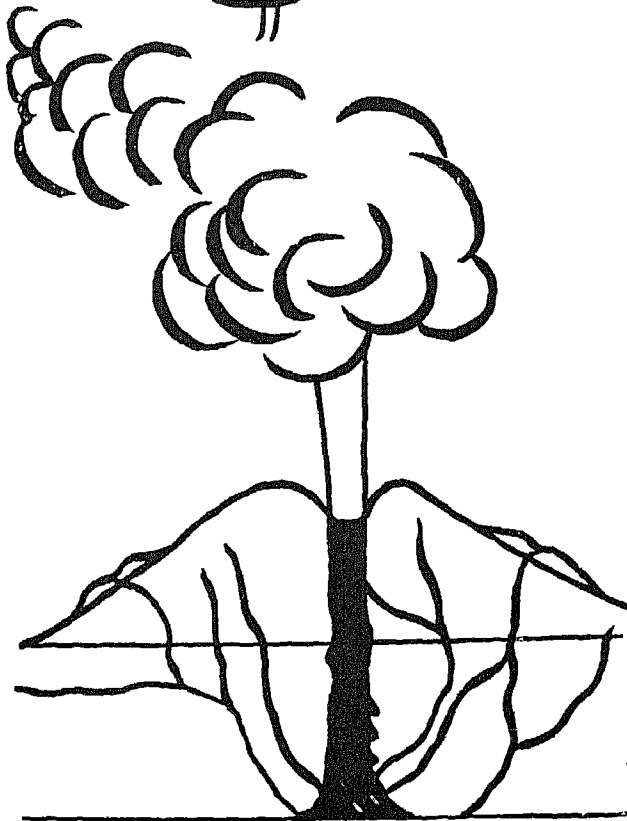
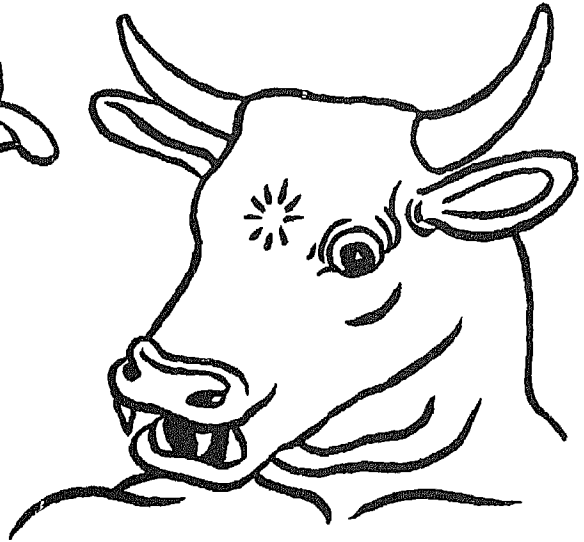
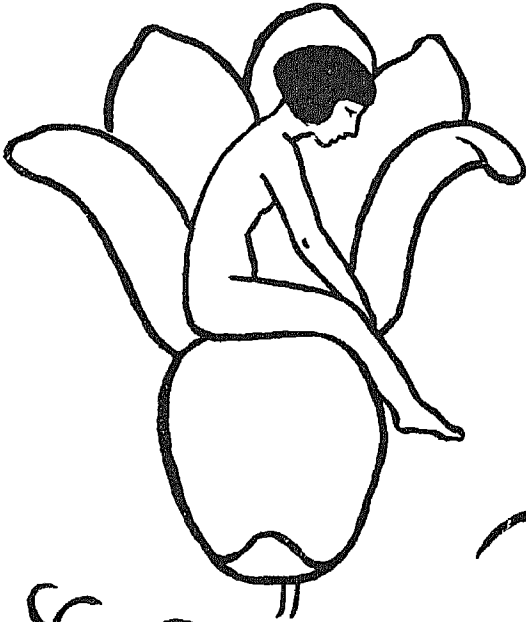
Write on the blackboard

1. The thunder rolled. The rain fell.
2. The sun shone. It gave no warmth
3. Tom pulled on his boots. Tom picked up his hat
4. The car crashed into a shop window. Nobody was hurt
5. Mary fell into the pond She did not catch cold
6. John paid his penny. John took a currant bun.
7. The aeroplane passed over our house. I was asleep and did not hear it.

The children must join these pairs of sentences with either *but* or *and.*

II. Joining sentences with "who" or "which".

Write on the blackboard:

1. I have just seen the book. The book Mother has bought for Tom.

TOMMELISE—*See page* 310
VOLCANO—*See page* 311

MINOTAUR—*See page* 317
THESEUS—*See page* 317

2 This morning I met a man The man used to be our dustman
3 There were three children. The children went to play on the ice
4 Have you seen my cricket bat? The bat I left on the table.
5 I have a fat pig The pig has a curly tail.
6 Tom was a butcher's boy Tom used to deliver the meat on a bicycle.
7 This is a tale of three women The women had one eye between them

The children must join these pairs of sentences with either *who* or *which*

III Question framing.

Write on the blackboard

1. A donkey can eat thistles because its mouth is hard and rough inside
2. Fishes eat other smaller fishes, and plants that grow in the water
3. Houses are made of brick and wood and stone.
4. A duck does not get wet because its feathers are oily
5. A cat carries her kittens in her mouth.

The children must write the correct questions to which these sentences are the answers. The correct questions are.

1. How can a donkey eat thistles?
2. What do fishes eat?
3. Of what are houses made?
4. Why does a duck not get wet?
5. How does a cat carry her kittens?

IV. Skeleton story.

Write on the blackboard.

Little boy — Harry — walking — summer — fields — snake — coiled round — leg — shrieked for help — brave boy — Tommy — ran up — seized — by the neck — tore it off — threw it away — Harry's mother — grateful — invited — Tommy — dinner — firm friends.

The children must complete the above skeleton story.

21.—WHEN AND WHERE

INTRODUCTION

THIS lesson deals with adverbs of time and place, and with the substitution of synonyms.

ORAL WORK

A Discuss with the children the use of adverbs of time which tell *when* an action is done. Let them think of as many as they can, and make a list of them on the blackboard. *For example* before, since, now, then, soon, late, already, ago, yesterday, to-day, once.

B Discuss with the children the use of adverbs of place which tell *where* an action is done Let them think of as many as they can, and make a list of them on the blackboard. *For example* here, there, where, inside, outside, near, far, somewhere, nowhere.

WRITTEN WORK

I. Adverbs of time.

Write on the blackboard:

yesterday, once, now, then, before.

Let the children compose sentences using these adverbs of time *For example* I saw her *to-day*. He will *soon* come.

II. Adverbs of place.

Write on the blackboard·

inside, near, away, there, far

Let the children compose sentences using these adverbs of place

III. Insertion of adverbs.

Write on the blackboard·

1 I met her —(1)— when she was in the village.
2. Take the dog —(2)—!
3 I am leaving this house —(1)—.

4. Stand —(2)— while I talk to you.
5. Have I seen you —(1)—?
6. My brother came —(1)— to visit us —(2)—.

The children must fill the gaps marked (1) with adverbs of time, and those marked (2) with adverbs of place

IV. Synonyms.

Write on the blackboard:

1. And they wondered at that *mighty* city, with its roofs of *burnished* brass, and long and lofty walls of marble, with strong palisades above
2. "That looks too *pretty* to eat," he said, smiling with *pleasure*, as Jo uncovered the dish, and *showed* the blanc-mange, *surrounded* by a *garland* of green leaves, and the *scarlet* flowers of Amy's pet geranium
3. After a few minutes' *silence*, Mr. Dobson, a *plump*, portly, *stern-looking* man, with a loud voice, appeared, and the conversation *commenced*

The children must substitute synonyms for the words in italics.

22.—HOW THESEUS SLEW THE MINOTAUR

Introduction

HERE we have Kingsley's rendering of the most striking incident in the story of Theseus, the full account of which is given in the History section of Vol II, page 37 It will be necessary to explain to the children the nature of the *clue* by means of which Theseus found his way out of the labyrinth it was a ball of thread which was tied at one end to the opening of the labyrinth and which Theseus unwound as he went along The *labyrinth*, a winding cave constructed like a maze, will also require explanation Some children may be familiar with the maze at Hampton Court It will be found helpful, if time permits, to read to the children the full story given in Vol. II, for this will give them the setting of the incident, and enhance the beauty of Kingsley's style in comparison

The extract is made the subject of the study of adverbs formed from adjectives, and of work on phrases and composition

Blackboard sketches of Theseus and the Minotaur are given on page 315

Reading

Theseus hid the sword in his bosom and rolled up the clue in his hand, then he lay down and slept sweetly And when the evening came the guards came in and led him away to the labyrinth

And he went down into that doleful gulf, through winding paths among the rocks, under caverns, and arches, and galleries, and over heaps of fallen stone And he turned on the left hand, and on the right hand, and went up and down till his head was dizzy, but all the while he held his clue For when he went in he had fastened it to a stone, and left it to unroll out of his hand as he went on, and it lasted him till he met the Minotaur in a narrow chasm between black cliffs

When he saw him he stopped awhile, for he had never seen so strange a beast His body was a man's: but his head was the head of a bull, his teeth were the teeth of a lion, and with them he tore his prey. And when he saw Theseus he roared, and put his head down, and rushed right at him

But Theseus stepped aside nimbly, and as he passed by, cut him in the knee, and ere he could turn in the narrow path, he followed him, and stabbed him again and again from behind, till the monster fled bellowing wildly, for he never before had felt a wound. And Theseus followed him at full speed, holding the clue of thread in his left hand

Then on, through cavern after cavern, under the dark ribs of sounding stone, among the sunless roots and to the edge of the eternal snow, went they, the hunter and the hunted, while the hills bellowed to the monster's bellow.

And at last Theseus came up with him, where he lay panting on a slab among the snow, and caught him by the horns, and forced his head back and drove the keen sword through his throat.

CHARLES KINGSLEY *The Heroes.*

ORAL WORK

Describe the *labyrinth.*

Express *doleful gulf* in other words.

What is a *chasm?*

What was the *clue* and how did Theseus use it?

Describe the Minotaur.

Tell what happened when Theseus met the Minotaur.

What did the monster do when he was wounded?

What happened to the Minotaur?

To each of the six paragraphs of the Reading, write a heading which tells what the paragraph is about. (*For example* 1. Theseus' preparation for the fight. 2 Theseus' wanderings in the labyrinth. 3 The meeting with the Minotaur. 4. The fight with the Minotaur 5 The chase 6 The slaying of the Minotaur)

WRITTEN WORK

I. Dictation.

Dictate from the Reading the third paragraph, beginning· "When he saw him he stopped awhile"

II. Adverbs from adjectives.

Discuss with the children the formation of adverbs from adjectives, using these examples: (*a*) Her voice was *quiet* and she stepped *quietly* (*b*) She danced *beautifully*, clad in a *beautiful* dress. (*c*) She *gently* smoothed the cloth with *gentle* fingers Point out how the adjective is always associated with a noun, and the adverb with a verb Such adverbs are easy to recognise because they end in *ly*

Write on the blackboard:

1. Thinking of the *sweet* words of comfort he had heard, Theseus lay down and slept ——.
2. He went down into that *doleful* gulf around which the cries of the wild birds echoed ——
3. He met the Minotaur in a *narrow* chasm, and —— escaped being killed
4. With *nimble* fingers Theseus unwound the clue, and as the monster rushed at him he —— stepped aside
5. More ferocious than any *wild* bull, the monster fled bellowing ——, for he never before had felt a wound.
6. Though he —— felt the effects of the long chase and the fight, Theseus did not slacken, but drove his *keen* sword through the throat of the Minotaur.

The children must insert the appropriate adverb which in each case is derived from the adjective in italics.

III. Choosing phrases.

Write on the blackboard:

among the rocks, all the while, when the evening came; up and down, to the labyrinth; of fallen stone, into that doleful gulf, on the right hand.

And —— —— —— ——, the guards came in and led him away —— —— ——

And he went down —— —— —— ——, through winding paths —— —— ——, under caverns, and arches, and galleries, and over heaps —— —— —— And he turned on the left hand, and —— —— —— ——, and went —— —— ——, till his head was dizzy, but —— —— —— he held his clue.

Let the children rewrite this passage, filling in the appropriate phrases from the given list.

IV. Composition.

Write on the blackboard:

1. Describe how Theseus fought and conquered the Minotaur, using these words: narrow chasm, strange beast, bull; lion; roared, rushed; stepped aside, knee; narrow path; stabbed; monster fled bellowing, followed at full speed; caught him by the horns; forced his head back, keen sword.
2. Tell why Theseus held a clue of thread in his hand, and how he used it.

23.—OTHER JOINING WORDS

Introduction

THE title of this lesson applies to the exercise which is here introduced for the first time It is the use of the more familiar conjunctions, in the same way as the words *and* and *but* have been already dealt with The remainder of the lesson provides revision work.

Written Work

I. Other joining words.

Write on the blackboard·

because, than, as soon as, if, that, where, until.

1. My mother says. I must stay at home
2. I know this is the man I have seen him before
3. I shall come to school to-morrow My cold is better
4. No one could find out. He had left his umbrella
5. You must wait here I come back.
6. He left the house The rain stopped
7. I would rather have a new pen Take money to spend.

The children must join each pair of sentences with the appropriate conjunction.

II. Change Singular into Plural.

Write on the blackboard

1. My room suits me exactly.
2. The child picked a blackberry
3. There is a cow on the hillside.
4. The boy put on his coat.
5. The man has a rich friend.

III. Choice of adverbs.

Write on the blackboard but do not underline the italicised words

1. The house was (suitably, *conveniently*, usefully) situated just outside the town.
2. The child crept (heavily, snugly, *nervously*) down the dark stairs
3. The hero strode (*valiantly*, delicately, fearfully) to the fight
4. The starved dog ate the food (gently, quietly, *ravenously*)
5. A wise man speaks (proudly, *modestly*, haughtily) on all occasions
6. The mother sang (hopefully, *softly*, noiselessly) to her sleeping child

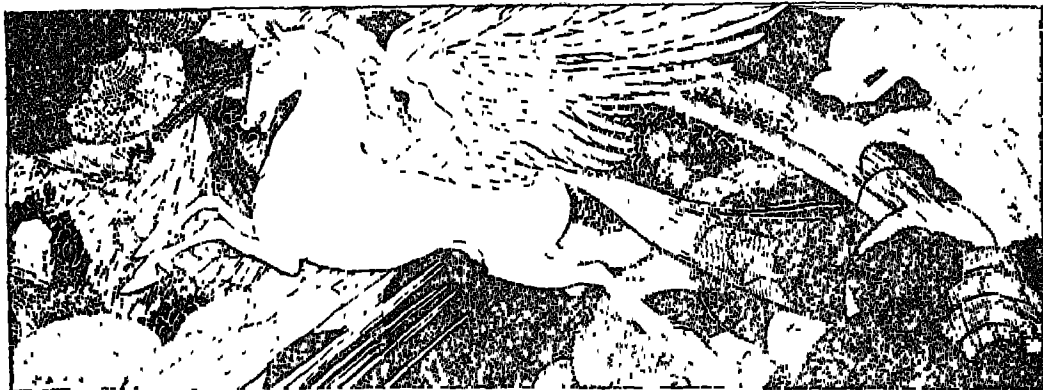
The children must rewrite these sentences, selecting the appropriate adverbs, which are written in italics for the convenience of the teacher only

IV. Messages.

Write on the blackboard:

1. Ask your butcher to send you some beef for your dinner to-morrow Tell him how much you want and at what time to deliver it
2. Ask your neighbour, Miss Smart, to lend you her mincing machine for the morning, as you have lost the screw from yours
3. Ask your friend, Harold, to lend you his bicycle pump for the afternoon, as you have to cycle two miles and are afraid you have a small puncture

24.—PEGASUS

PART I

Introduction

THE following description of the winged horse Pegasus is given in rich and flowing language It merits a closer study than any of the foregoing descriptive passages, and will prove an inspiring model of composition to young pupils. It should be read at least twice over before commencing the oral study, it may then be best studied a paragraph at a time

The Reading may be introduced by a brief reference to the ancient peoples of Greece and Rome, whose wonderful stories have been handed down to us from a time many hundreds of years before Jesus Christ was born. Mount Helicon, a mountain range of Boeotia in ancient Greece, was supposed to be the favourite haunt of the Muses—the goddesses who presided over the fine arts and literature—and was considered to be sacred The fountain of Pirene in Corinth is connected by legend with the nymph Pirene, who wept so copiously on the death of her son that she was changed into a fountain.

The passage lends itself to abundant study of words and phrases. The practice of marking the stressed syllable of less familiar words is an aid to spelling as well as pronunciation, and serves as an introduction to the consideration of metre in verse

Blackboard sketches of Pegasus and the fountain of Pirene are given on page 323 of this volume

Reading

Some of you, my little friends, have probably heard that this Pegasus was a snow-white steed with beautiful silvery wings who spent most of his time on the summit of Mount Helicon He was as wild and as swift and as buoyant in his flight through the air as any eagle that ever soared into the clouds There was nothing else like him in the world He had no mate, he had never been backed or bridled by a master, and for many a long year he led a solitary and a happy life

Oh, how fine a thing it is to be a winged horse! Sleeping at night, as he did, on a lofty mountain top, and passing the greater part of the day in the air, Pegasus seemed hardly to be a creature of the earth. Whenever he was seen up very high above people's heads, with the sunshine on his silvery wings, you would have thought that he

belonged to the sky, and that, skimming a little too low, he had got astray among our mists and vapours and was seeking his way back again It was very pretty to behold him plunge into the fleecy bosom of a bright cloud and be lost in it for a moment or two, and then break forth from the other side Or, in a sullen rainstorm, when there was a grey pavement of clouds over the whole sky, it would sometimes happen that the winged horse descended right through it, and the glad light of the upper region would gleam after him. In another instant, it is true, both Pegasus and the pleasant light would be gone away together. But any one that was fortunate enough to see this wondrous spectacle felt cheerful the whole day afterwards, and as much longer as the storm lasted

In the summertime and in the most beautiful of weather Pegasus often alighted on the solid earth, and, closing his silvery wings, would gallop over hill and dale for pastime as fleetly as the wind Oftener than in any other place he had been seen near the fountain of Pirene, drinking the delicious water or rolling himself upon the soft grass of the margin Sometimes, too (but Pegasus was very dainty in his food), he would crop a few of the clover blossoms that happened to be sweetest.

NATHANIEL HAWTHORNE. *The Wonder-Book.*

ORAL WORK

What does the first paragraph of the Reading tell you?

Describe the appearance of Pegasus.

In what ways was Pegasus like an eagle?

What does the second paragraph describe?

How did Pegasus pass his time?

What did people sometimes see in the sky when it was dull and grey?

How did the people who saw Pegasus feel afterwards?

What does the third paragraph describe?

When did Pegasus visit the earth?

WRITTEN WORK

I. Dictation.

Dictate from the Reading the passage beginning: "Oh, how fine a thing it is" to "seeking his way back again."

II. Stressed syllables.

Write on the blackboard

buoyant, bridled, solitary, descended, fortunate, belonged, wondrous, spectacle, alighted, delicious, margin.

The children must mark the stressed syllable in each of these words, in this way Pégasus, beaútiful.

III. Nouns and adjectives.

Write on the blackboard·

Silvery ——	Fleet ——
Lofty ——	Delicious ——
Fleecy ——	Grey ——
Sullen ——	Soft ——

The children must supply appropriate nouns for these adjectives.

IV. Simplifying phrases.

Write on the blackboard.

1 A snow-white steed with beautiful silvery wings.
2 He had never been backed or bridled by a master
3 Plunge into the fleecy bosom of a bright cloud
4 A grey pavement of clouds over the whole sky
5. The glad light of the upper region.

The children must express the meaning of the above phrases as simply and shortly as possible; e g.—1 A white winged horse 2 He had never been ridden. 3. Go into a cloud. 4 A grey sky. 5 The light above.

V. Composition.

Write on the blackboard:

1. In four sentences describe Pegasus.
2. In four sentences describe an animal without giving its name. Read your description to your friends to see if they can guess the animal.

25.—PEGASUS

PART II

THIS lesson is a continuation of the previous one, and may be opened by oral revision of the Reading.

Written Work

I. Choice of words.

Write on the blackboard:

In the summertime and in the most —— of weather Pegasus often —— on the solid ——, and, closing his —— wings, would —— over hill and dale for pastime as —— as the wind Oftener than in any other place he had been seen near the —— of Pirene, drinking the —— water or rolling himself upon the soft —— of the margin Sometimes, too (but Pegasus was very —— in his food), he would —— a few of the clover blossoms that happened to be sweetest

The children must fill the gaps with words as nearly like those in the Reading as they can remember

II. Phrases.

Write on the blackboard:

1. for many a long year.
2. up very high above people's heads.
3. how fine a thing it is.
4. for a moment or two
5. in the summertime
6. as fleetly as the wind

The children must write sentences which each contain one of these phrases.

III. Skeleton descriptions.

Write on the blackboard:

1. Sheep — flock — shepherd — sheep-fold — early morning — green pasture — midday rest — beautiful wool — shorn every year — clothes.
2. Pigs — fat and dirty — bristles — curly tails — pigsty — scraps of food — pork — ham — bacon — sausages — brushes.

The children must complete these descriptions.

IV. Telegrams.

Write on the blackboard:

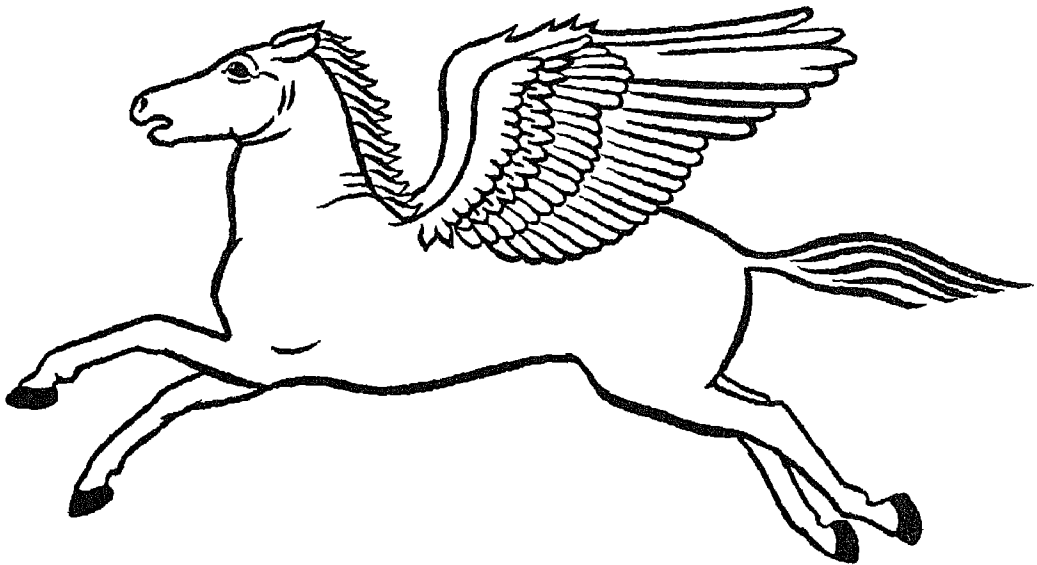
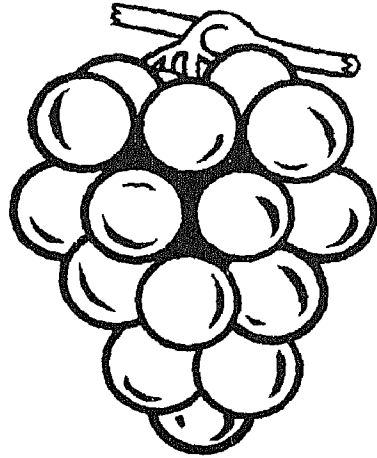
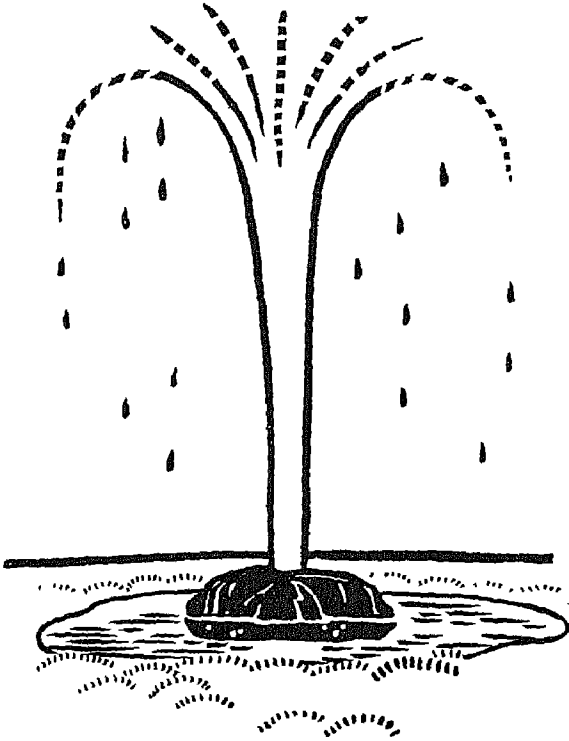
1. Will you kindly bring my bathing costume when you come to-morrow, for we shall be leaving for our holidays on Thursday.
2. There has been a fire at the school so I am bringing your son Robert home in my car. We expect to arrive at about 6 o'clock this evening.
3. We are sending a big cake for your birthday. It will arrive to-morrow morning at nine o'clock.

The children must convert these messages into telegrams. Suitable telegrams would be as follows:

1. Bring my bathing costume to-morrow.
2. School fire bringing Robert car arrive 6 p.m to-day.
3. Birthday cake arrives 9 a.m. to-morrow.

26.—THE OLD MAN OF THE SEA

Introduction

THIS rather more difficult Reading provides abundant material for the study of words and phrases. The children should be told that a sailor is telling the story. Blackboard sketches of a gourd and a bunch of grapes are given on page 323.

FOUNTAIN OF PIRENE—*See page* 320
PEGASUS—*See page* 320

GOURD—*See page* 322
BUNCH OF GRAPES—*See page* 322

READING

When I had advanced a little way into the island, I perceived an old man, who appeared very decrepit. He was seated on the bank of a little rivulet I approached and saluted him: he replied only by a slight inclination of the head. I asked him what he was doing, but instead of answering, he made signs to me to take him on my shoulders, and cross the brook, making me understand that he wanted to gather some fruit

I supposed he wished me to render him this service, and taking him on my back, I waded through the stream. When I had reached the other side, I stopped, and desired him to alight; instead of complying, this old man, who appeared to me so decrepit, nimbly threw his legs, which I now saw were covered with skin like a cow's, over my neck, and seated himself fast on my shoulders, at the same time squeezing my throat so violently that I expected to be strangled; this alarmed me so much that I fainted away.

Notwithstanding my condition, the old man kept his place on my neck, and only loosened his hold sufficiently to allow me to breathe When I had somewhat recovered, he pushed one of his feet against my stomach, and kicking my side with the other, obliged me to get up. He then made me walk under some trees, and forced me to gather and eat the fruit we found. He never quitted his hold during the day; and when I wished to rest at night, he laid himself on the ground beside me, always clinging to my neck. He never failed to awaken me in the morning, and then he made me get up and walk, kicking me all the time. Imagine how miserable it was to me to bear this burden, without the possibility of getting rid of it.

One day I chanced to find on the ground several dried gourds, which had fallen from the tree that bore them. I took a large one, and after having cleaned it well, I squeezed into it the juice of several bunches of grapes, which the island produced in great abundance When I had filled the gourd, I placed it in a particular spot, and some days after returned with the old man On tasting the contents, I found the juice converted into excellent wine, which for a little time made me forget the ills that weighed upon me The drink gave me new vigour, and raised my spirits so high that I began to sing and dance as I went along

Perceiving the effect this beverage had taken on my spirits, the old man made signs to me to let him taste it I gave him the gourd, and the liquor pleased his taste so well that he drank it to the last drop. There was enough to inebriate him, and the fumes of the wine very soon rose to his head, he then began to sing after his own manner, and to sway to and fro on my shoulders. Finding he no longer held me tight, I threw him on the ground, where he lay motionless.

Arabian Nights

ORAL WORK

What does the first paragraph tell you?
What did the old man appear to want?
What did the old man really want?
Tell what happened when the old man had been carried over the stream by the sailor
Describe the life the old man forced the sailor to lead
Why was the sailor miserable?
What is a *gourd*?
Tell how the sailor made his wine.
Tell how the sailor got rid of the old man.
Retell the story.

WRITTEN WORK

I. Dictation.

Dictate from the Reading the passage from the third paragraph, beginning, "When I had somewhat recovered" to the end of the paragraph

II. Composition.

1. Tell the story of the Reading shortly, as it would be told by the old man
2. Tell how the sailor managed to get rid of the old man.

THIRD YEAR'S COURSE
OF
NEEDLEWORK

From the picture by P J Diercks]

[*By permission of the Rochdale Art Gallery Committee*

THE KNITTING LESSON

SYLLABUS OF THE THIRD YEAR'S WORK

Type of pattern.—Patterns made by paper folding, and bought patterns of dolls' clothes and simple garments.

Articles or garments made.—Pinafores, Magyar rompers and tunics for baby, one-piece drawers

Experimental work.—Making dolls' clothes using bought patterns.

Knitting.—The use of simple cyclostyled or printed directions to make vests, scarves, etc.

Processes.—

1. French seam.
2. Turning ½ in. hem to form a slot for insertion of elastic.
3. Neatening necks and ends of sleeves and legs by means of facings on the right side, cut to shape on the straight thread.
4. Making and sewing on pockets.
5. Fastenings, buttons and loops, cords.

Stitches.—

1. Loop stitch for several purposes.
2. Back stitch for occasional use.
3. Decorative work—simple decoration to pupils' own designs, or to adapted transfers, using loop stitch, back stitch, cross stitch, outline stitch.

Materials.—Any materials previously used No 40 coloured cotton.

INTRODUCTION

During the third year in the primary school the teacher has many opportunities of helping the children to cultivate the sense and love of beauty The pupils are nine to ten years of age, and this is an important year for them in which to develop observation and to form good habits of work Without these abilities, artistic appreciation and even talent cannot be of real value during school life, or afterwards.

The training of character must also be an aim in all Needlework and Handwork lessons. Each lesson should be directed towards the cultivation of certain qualities,—for example, to develop reasoning and perseverance, and to acquire self-control. All these qualities are necessary in life and are therefore truly educational.

Great skill is not yet to be expected of the children, for gradual training in accuracy, in handling and in the recognition of good shape and line, is necessary before they can attain a workmanlike standard At about this age girls begin to take an interest in their own clothes, therefore it is important that all the materials used should be good in texture, colour and design. It is also necessary to keep pace with the fashion The first step in training children to shop wisely is to encourage them to observe the prevailing colours and materials in the shop windows It will be found a good plan for the teacher to arrange with local firms to send patterns of the materials they display, these should be of fairly generous proportions. They may then be examined, and discussed by the class. When it is the custom for the children to bring their own materials, these discussions should assist them to make a good choice; it is not advisable, however, to dictate to them in their choice of any particular shop. When the materials are supplied by a firm through the Education Committee the range of them is often more limited In either case the materials must be suitable in texture for the selected garments, the pupil must be allowed some voice in the matter, and the

resulting garments must be saleable at a reasonable price.

The selling of garments, though an unpleasant part of the teacher's work, need not present great difficulty, for if the children love their work they will wish to possess the articles they make It is therefore important that the garments chosen should be desirable both to the children and their parents It is advisable to establish contact with the pupils' mothers so that they may be familiar with the work of their children and see that the garments being made are worth purchasing. It may be found convenient to hold an open day for visitors when the children are actually at work upon their nearly finished garments. A finished garment made by the teacher, the paper patterns used and samples of the materials chosen, might be displayed, together with a statement of the cost of the articles. Too often the teacher aims at making so many garments during the year that the parents cannot afford to purchase them. A greater simplicity of style and more time spent in careful planning of work would result in fewer garments but better work, with corresponding advantages to the children—a greater feeling of freedom, less boredom with laborious processes, and above all, a sense of achievement. Children then look forward eagerly to the next piece of work to be done.

During the third year the patterns used should be diverse in character. While every effort should be made to familiarise the girls with bought patterns, the making of patterns by the girls themselves must not on any account be neglected Pattern making is invaluable as a means of training the eye and the hand to work easily, and the mind to make accurate observations, as every measurement made and every line drawn bears a relation to the size and shape of the body

There are two methods of pattern making to be considered,—

1. Drafting or pattern making by proportion.

2. Drafting or pattern making to direct measurements.

The first method entails using measurements of certain sizes which are suitable for any child whether tall, medium or short in height The width of the garment required is calculated from a proportion of the bust measurement This method will be more fully explained later

The second method is more suitable for the child's initial excursions into this branch of needlework The measurements used on flat paper are seen to bear some relation with those taken from the child's own body, moreover, there are few, if any, tiresome calculations to be made The construction lines should be few, and the shapes of lines and curves simple, the necessary calculations should be confined to length and width, and to halves or quarters of these, for if the shapes are simple and easily drawn from one construction line to another, inches and fractions of inches need rarely be used No pattern, whether bought or made, should be used for class purposes unless the teacher herself has had some knowledge of its possibilities,—that is to say, she must know its adaptability to individual measurements and requirements, whether it is easily made up, and also easily laundered

When once familiarity has been gained with drafted or made patterns, it will be found a simpler matter to modify and adapt those contained in textbooks New ideas can often be obtained from illustrations in newspapers, fashion books and catalogues, and drafts or patterns may be made of these, often by the girls themselves, if the two or three simple fundamental principles of pattern making are properly understood at the outset

The experimental work of this year should consist in dealing with both drafted and bought patterns, with the handling of fresh materials and with the processes of making up. The making of dolls' clothes by the girls' unaided efforts is recommended. Most of the well-known makers of patterns have

attractive sets of patterns of dolls' clothes which are sold in small packets, and are miniature patterns in every respect. It is usually possible to provide dolls for everyone, although there is always a small proportion of girls who do not possess dolls, either because they dislike them, or cannot afford to buy them A second difficulty arises when the dolls provided by the children are of such odd shapes and sizes and sometimes in such a disreputable condition as to be unsuitable for class use It is possible, however, to hand over the dressing of awkward dolls to a few girls, perhaps three or four, who are quicker workers and have finished their work in hand. It is extremely interesting to watch girls who have been given a paper pattern "out of a packet" complete with illustrations, and to see the thrill with which they open the packet, measure their dolls and then, having selected the material for a particular garment from the piece bag, proceed to cut out the garment, coming to the teacher only when they feel the need of help and guidance

During the early period of the year, the use of the tape measure may be taught, naturally and simply, merely by allowing the girls to measure one another for the pattern to be made. This leads to the gradual discontinuance of markers for general measurement, and to the adoption of the tape measure.

SUGGESTED COURSE OF LESSONS FOR THE FIRST TERM

LESSON 1

Preparation for work.—In this lesson the girls are to construct patterns of pinafores for themselves. The material chosen for the pinafores may be casement cloth, gingham, linen, or unbleached calico, using No. 40 coloured cotton and a No. 7 sewing needle. The decoration is to consist of borders of decorative stitchery in loop stitch and tacking or running. The details and demonstration of this lesson are given on page 333.

LESSON 2

Discussion of work.—The corrected patterns may be returned to the children, and careful directions given for cutting round the outline of the shape Show round samples of material, and discuss their quality and price, and the need for a pinafore to be made of good washing material with fast colours. The pupils may choose their materials and calculate the amount required

LESSON 3

Cutting out the pinafore.—This lesson is given in detail on page 338.

LESSON 4

Making up the pinafore.—The pinafore is in two pieces, consisting of a bib and a skirt joined together at the waist Show the pinafore to the girls, placing it upon one of them, and emphasise any points which call for special attention. Revise turning down hems, and allow the girls to commence their work by turning hems ¼ in. wide along the sides of the skirt and the bib, tacking the hems in place upon the wrong side of the garment

LESSONS 5, 6 and 7

Hemming.—These three lessons may be devoted to holding the hems in place by means of hemming, using a No 7 sewing

needle and No 40 sewing cotton, with a marker for measuring widths.

LESSON 8

Curves and corners.—Revise the turning of hems along a curved edge and, using unbleached calico, demonstrate the management of the corners at the top of the bib. Particular care must be exercised in supervising this piece of the work, and children must be trained to use plenty of pins. They should, at this stage, be taught to fold their work flat at the end of each lesson, each child should be given clean cutting-out paper in which to wrap her work before placing it in her needlework bag

LESSON 9

Preparation for embroidery.—This lesson must be devoted to preparation for loop stitch embroidery and the choosing of coloured threads for the work Explanatory instruction should be given with regard to the choice of colours, for children are apt to choose most extraordinary colours and to show poor taste. Only threads of good quality and colour should be offered to the children; other colours, such as pale blues, pinks, mauves, etc., being discarded in favour of strong tones of colour and clear contrasts.

LESSON 10

Preparation of pinafore for decoration.—The pinafore is now ready for decoration, which must be completed before proceeding to make up the garment

The pinafore may be ornamented in various ways, and the children must be guided to appreciate the right use of ornament. They are not of an age to derive any benefit from formal teaching about the principles of ornament. Nevertheless, these principles can be instilled by the refusal of the teacher to allow wrong ideas to formulate, and by showing work containing good and correctly placed decoration which follows out artistic principles Briefly, the children may be told the following points:—

1. All decoration, such as stitchery, should be an actual part of the garment or article and should never be added to the otherwise finished article in order to give "touches of colour."

2 Embroidery should be worked when the article is partly made, so that there is less material to handle, and often because a neater finish will result

3 The position of the decoration depends upon the shape of the article and the use to which it is to be put Its initial cost must also be considered, as well as the processes and stitches used in making up.

4. The stitches used for decorative purposes depend upon the effect which is required and upon the capabilities of the worker, and also upon the kind of material used All this may be taught indirectly and incidentally, mainly by means of example.

This pinafore is to be decorated by means of a deep border of stitchery composed of tacking stitch and loop stitch combined. The position of the border must first be marked with two rows of tacking stitch in ordinary white cotton 1½ in. up from the raw edge along the bottom of the bib, and a second row 1 in. above the first row. (The middles of both bib and skirt have previously been marked in a similar manner.) The pockets must also be marked along the edge which is to form the base, as the appearance gained from decorating that part of a pocket is one of weight, and gives a good balance to the whole garment. The width of the border is to be 1 in. as on the bib

The details and demonstration of this lesson are given on page 339.

LESSON 11

Embroidery practice.—This lesson will be spent in practising stitches and working out ideas upon odd pieces of material. Time

spent in so doing is never to be reckoned as wasted, for planning is necessary in order to obtain good colour effects. When the desired effect has been gained, the girls may continue their practical work

LESSONS 12, 13 and 14

Practical work.—These lessons may be devoted to the continuation of decoration, hemming, and the preparation of the work for the joining of bib and skirt

LESSON 15

Joining bib and skirt.—The details of this lesson are given on page 340

LESSONS 16 and 17

Joining the bib and skirt.—The bib and skirt are joined by means of a French seam, and the projecting top edges of the skirt are turned to form a ¼ in hem This piece of somewhat intricate work does not require to be demonstrated to the class, but is more conveniently shown to groups or individuals as it becomes necessary. There will be 6½ in along the top edge of the skirt projecting beyond the bib at each side During the process of the French seam a ¼ in turning of this edge is folded over on the right side To correct this, snip the edge of the skirt at each end of the seam to the depth of the first turning (the snip will be ¼ in. and reach to the first running stitches of the French seam). Fold this ¼ in. turning in the reverse direction,—to the *wrong* side,—fold again and hem There will then be a neat finish to each of the bottom corners of the bib. Any raw edges must be stroked into the seam and the ends of the seam hemmed for security.

LESSONS 18 and 19

Practical work.—Continuation of the French seam and hemming.

LESSON 20

Revision of turning a 1 in. hem.—A 1 in hem is turned at the bottom edge of the pinafore, it is secured by hemming and oversewn at the ends to give neatness of finish These revision lessons are based on such questions as, "Can anyone suggest how to make the bottom of the pinafore tidy?"

The answers will vary according to the pupils' previous experience and observation, and the teacher must endeavour to lead the children to realise that such processes as scalloping, blanket stitch, binding, etc, would not be so suitable or attractive as a hem, similar to the hems that have been made down the sides, only wider. A wide hem gives a well-balanced appearance to a garment, it looks strong, and moreover it provides extra material to be let down For this reason it is particularly desirable to have fairly wide hems on children's garments.

The lesson may be continued by the following suggestion:—"Now that you know why it is better to have a wider hem at the bottom than you have already used down the sides, I want someone to come out and show us all how to do it" A pupil will endeavour to explain (using her own work) how to turn a 1 in. hem. The teacher will then tell the class to continue their work. Those who are ready to do so, will make the hem at the foot of their pinafores, turning it on the wrong side, pinning, tacking and then hemming it

LESSONS 21 and 22

Practical work.

LESSON 23

Making, decorating and sewing on the shoulder straps.—This lesson is illustrated in detail on page 343.

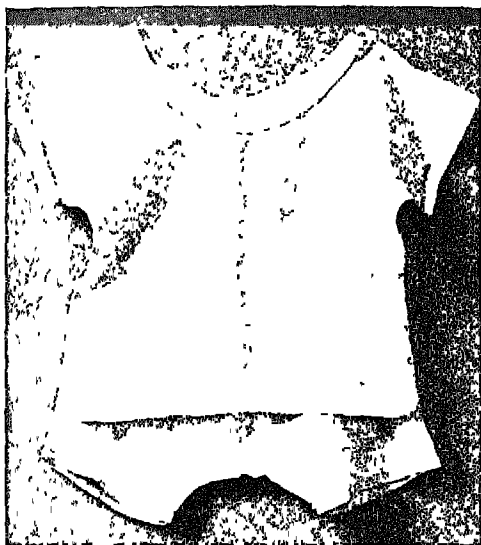
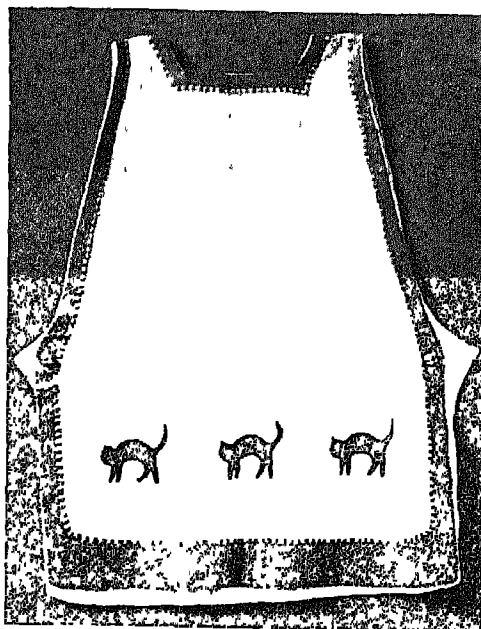
LESSONS 24 and 25

Practical work.—The children will continue to make their shoulder straps, the quicker

workers being allowed to decorate them before making them up. The pockets are neatened by ¼ in. hems down the sides and at the foot and by a 1 in hem along the top, after the decoration is completed.

LESSON 26

Attaching the pockets.—During this lesson the pockets should be attached to the pinafore by hemming down the sides and along the base; care must be taken to ensure neatness at the lower corners, and both neatness and strength at the top corners. The position for the pockets must first be marked on the pinafore, which should be folded in half lengthways, and four pins placed on each side in a position convenient to the wearer. The garment is then opened out and placed flat on the desk or table, and the pockets are pinned in position, the pins being placed in a direction at right angles to the edges of the pocket. The pinafore is then finished off by pressing, which the girls should be allowed to do for themselves, while the teacher supervises. To finish the garment a blanket-stitched loop is worked at the end of each strap, and a button, preferably one of the delightfully coloured wooden buttons, is attached to each end of the skirt at the waist.

FOUR LESSONS IN DETAIL FOR THE FIRST TERM

Tunic and Knickers in Linen

A Pinafore in Natural Coloured Linen with Red Facings and Appliqué

FOUR lessons, the organisation and arrangement of which are set out in detail, are now given in the order in which they will be required. The illustrations show the actual material required for demonstration purposes, whether of paper or of material A previously prepared sampler of decorative stitchery borders is used for one lesson, but no blackboard or other diagrams are necessary.

MAKING THE PATTERN OF A PINAFORE

(Details and Demonstration of Lesson 1.)

PREPARATION

Previous knowledge—Making the pattern of a feeder and modelling the pattern of a doll's pinafore on a doll.

Aim.—The aim of this lesson is to teach the following points —the necessity for a pattern to be cut the size to fit the individual for whom it is required, and for it to be the shape desired, a simple method of making a pattern by paper folding; the use of the tape measure; training in observation and accuracy.

Teacher's requirements—A piece of paper the exact size of those used by the pupils.

Blackboard, and chalk—bright red, bright blue and white Pins and drawing pins A tape measure and a two foot ruler A finished pinafore to fit one of the children.

Children's requirements —A tape measure, pencil and ruler. (The piece of paper upon which the pattern is to be made cannot be given out until the length and width required by each individual has been ascertained and corrected. This process might quite well take place during an arithmetic lesson, or at any other convenient time, but it is given here as though included in this lesson.)

INTRODUCTION

Begin the lesson by placing the finished pinafore upon one of the little girls. Ask the children whether they like it, and for what reasons pinafores are worn. Explain that this particular garment is economical, taking only ¾ yd. of casement cloth at 1s 6*d*. per yd., and 1 skein of embroidery cotton at 2*d* , thus bringing the cost of the garment to 1s. 3½*d*., which is not expensive when one realises that many dresses will be kept clean by its use. Explain, too, that the garment consists of two main pieces, a bib and a skirt, with two shoulder straps and two pockets Tell them that a pattern will have to be made, as the children will probably realise, so that the pinafore will be of the correct length and width for the wearer, and that the material may be cut economically

PRESENTATION

Question the children in order to revise the method of pattern making previously used Ask them whether they are able, from the knowledge they already possess, and from their observation of the pinafore worn by the girl, to tell which parts of the body need to be measured for this particular garment The measurements required are:—

1. The length from the shoulder to the knee.
2. The length from the shoulder to the waist.
3. The measurement round the bust.

Demonstrate the taking of measurements by taking them on a girl of average size who should stand naturally (not stiffly) in front of the whole class. Measure the girl as follows —

1. Measure with a tape measure down the front of the body from the shoulder down to a short distance above the knee (27 in.)
2. Pass the tape measure round the bust, very loosely. (28 in.)

The girls may now measure each other, and this process will require careful organisation and supervision by the teacher, so that the measurements of the girls may be checked.

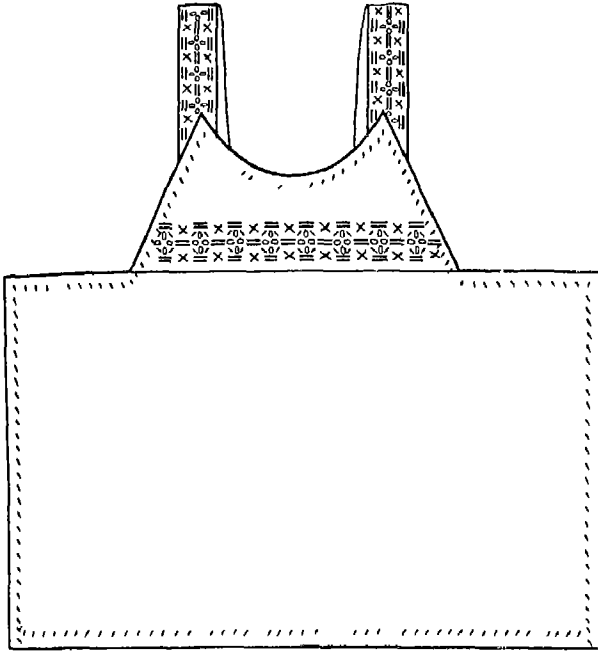
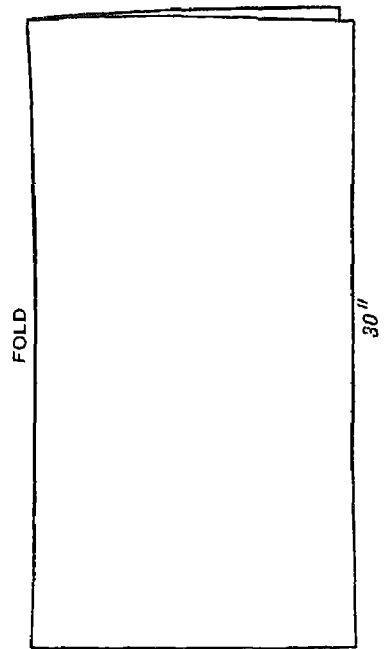
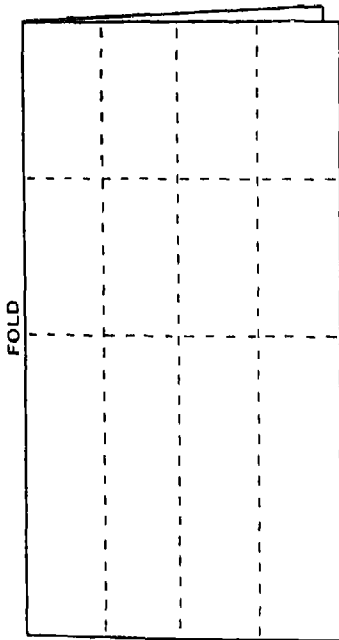
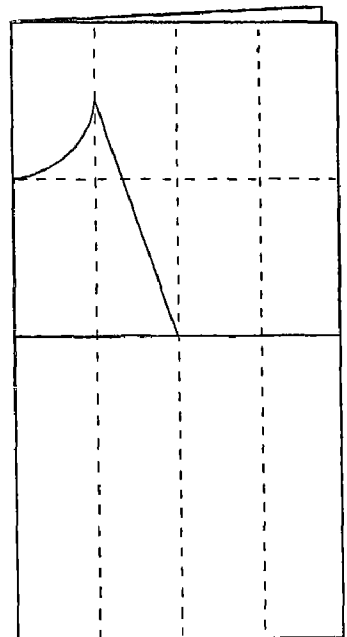
ORGANISATION

Allow the girls to work in pairs. Give each girl a small piece of paper (or alternatively, a needlework notebook) marked with her name, and let her write as follows —

Measurements

1. Length from shoulder to above knee =
2. Measurement round bust =

The measurements can be written down by the girl as she is measured by her partner, after which every girl should be re-measured by the teacher for checking purposes. If this work is done at some time previous to the actual drafting lesson, the teacher will have opportunity to cut pieces of paper the exact size required by each pupil. Each girl should be given a piece of paper as long as her own pinafore length plus 3 in. for the hem and turnings, and as wide as her bust measurement. The size of the piece of paper used for demonstration purposes by the teacher is 30 in. by 28 in.

(It is often difficult to explain that there is any relation between the bust measure-

MAKING THE PATTERN OF A PINAFORE

ment and the total width of the garment at the foot. The teacher herself knows that the divisions made by folding the paper must be a proportion of the bust size, in order to obtain correct widths at the front and back of a bodice, and a proportionate width at the foot of the garment.)

Write upon the blackboard the title of the lesson —*Making the pattern of a pinafore. Size of paper = length × bust measurement*

Pin the paper up at the right-hand corners only and see that each girl has her paper similarly placed on her desk (i e so that the length of the paper is from the edge of the desk towards the girl). Fold across the left-hand edge of the paper to touch the right-hand edge, and crease down the fold, which should come at the left hand. (This will be the final position for drafting) Fold again, and then once more, so that four divisions and three creases are made upon double paper Supervise this carefully, making sure that no girl alters the position of the paper to bring the fold to the opposite side Fold the paper across, crease, and open out. This horizontal crease becomes the waist line Then crease across the top half of the paper, by folding down the double edge to meet the waist line Instruct the girls to draw a continuous line at the half, along the waist line, and to make a dotted line along the last crease made. Tell them that a continuous line is made where any cutting has to take place, and that a dotted line is to be used as a guiding line. Remove the paper from the blackboard and place it in position (the lengthwise fold at the centre front), upon the girl whose measurements were taken, and allow the children to observe the significance of the creases made and the lines drawn They have now become construction lines, upon which the shaping can be built. In order further to convince the children, place the finished pinafore, folded in half, upon the paper. Pin up the paper again and proceed to draw in the pattern lines, the children working step by step with the teacher, who supervises constantly. The pattern is in three pieces as follows:—

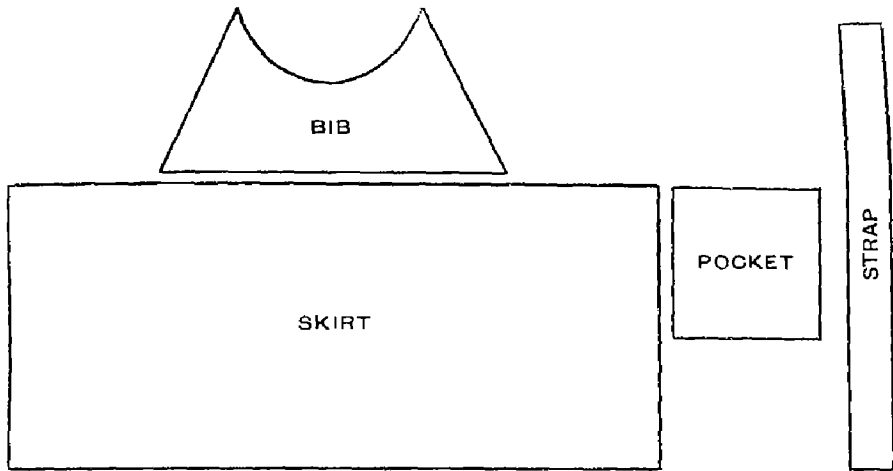
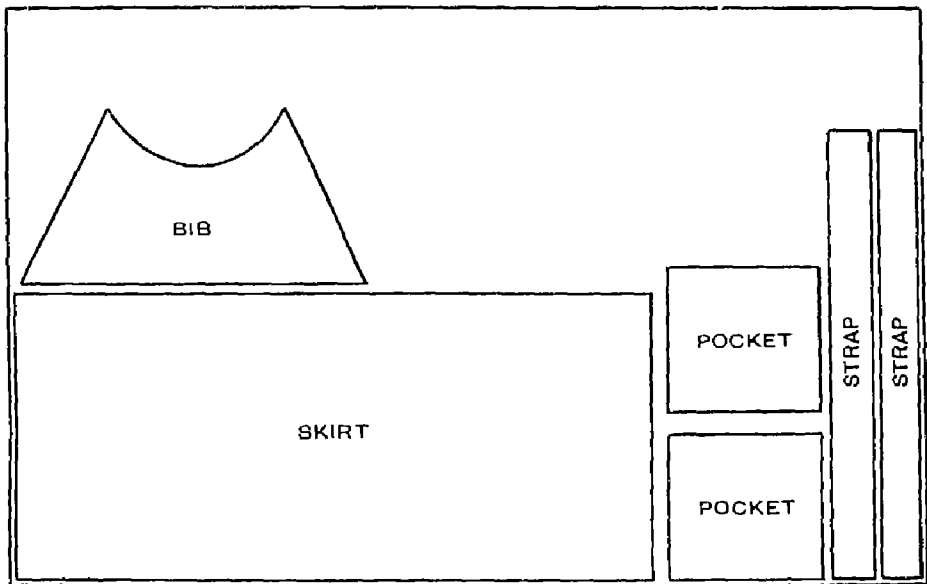
1. *The skirt* is complete in itself and is the whole of the piece below the waist line
2. *The bib.*—Measure halfway between the top edges and the dotted line, on the first crease in from the fold. Curve from that point down to the dotted line on the fold. This gives the front curve. Point this out by showing the curve on the finished pinafore. From the same point on the first crease line, draw a slightly curved or straight line to the continuous line on the second crease
3 *The straps*—The length of the straps is equal to the length from the point to the top edges of the paper, and from the top edges of paper down to the waist line They are $3\frac{1}{2}$ in in width

This can be demonstrated to the girls, who may later be allowed to make their own patterns of one strap only by themselves Every girl having made her pattern, the papers must be given in to the teacher to be corrected.

APPLICATION

Question the class to see whether they have any suggestions for further use of this type of pattern. When time allows, ask a girl to come forward and endeavour to draw over the pattern on the blackboard any lines which would provide an alternative shape for a pinafore (The folded paper is a more convincing piece of apparatus than a flat draft drawn straight on the blackboard, upon which it is difficult to convey the idea of a folded edge, a crease or a double edge)

CUTTING OUT

Cutting out is a difficulty in schools where there is limited accommodation. Where tables are scarce and sloping desks provide the only flat surfaces, well-washed blackboards placed on the desk tops are useful on which to cut out, but unless special sewing-room facilities are available, it is impossible for every girl to cut out her garment at the same time. Nevertheless

PIECES OF PATTERN

PATTERN PLACED ON MATERIAL 27″ x 40″

CUTTING OUT THE PINAFORE

every girl should cut out entirely by herself whatever she is going to make. The cutting-out lesson is given to the whole class, after which one or two methods of working may be shown by the teacher, according to the table room available, as follows:—

1 Where only one table is available, each girl may be given her own length of material, in this case ¾ yd. of 40 in. wide material (casement cloth) is needed for the pinafore, and some arrangement must be made for the girls to cut out at odd times.

2. Where several tables are available, each girl may be given her own length of material, and as many as possible can cut out their pinafores at the same time.

3 Where strictest economy has to be practised and tables are limited, it is best for the teacher to allow individual girls to work from one end of the roll of material, each girl fitting in her pattern, in order to waste as little material as possible This method is not realistic and does not teach cutting out in the truest sense. It is far more educational for every girl to pay for her own length of material, rather than for the garment; this teaches her also to regard her own odd pieces of stuff as having cost money, and therefore, as material which must be used in some other way if possible

CUTTING OUT THE PINAFORE

(Details and Demonstration of Lesson 3.)

PREPARATION

Previous knowledge—Cutting out a feeder and a doll's pinafore

Aim—The aim of this lesson is to teach the following points—the placing of a pattern on material in an economical manner in order to secure a well-fitting pinafore, the principles of cutting out, to train the muscles of the hand in order to give dexterity in manipulation of tools, and to train the mind towards accurate and rapid thought.

Teacher's requirements—A finished pinafore A completed pattern and ¾ yd. of material 40 in. in width, pins and scissors. Blackboard and white chalk. Drawing pins. (Prepared diagrams are not necessary)

INTRODUCTION

Show the girls the paper pattern and give out the material, of the length and colour required by each girl. In order to stimulate their interest in the work, ask them whether they have previously used a pattern, and if so how it should be placed upon the material in order to secure economical results After one or two girls have tried placing the pattern the teacher can begin the demonstration.

PRESENTATION

Tell the class that a larger piece of material has been provided, because straps and pockets, as well as odd pieces for practice purposes, are needed. They should always try to secure one or two large pieces of scrap material after cutting out, as these are very often useful, while several small scraps are merely wasted Open out the material so that the right side is facing the worker. (The right side of material is not always easily distinguishable It is useful to know that when material is of double or folded width, the inside is taken as the right side) Place the skirt pattern upon the material at the lower left-hand corner, so that the edges lie perfectly straight with the thread of the material The selvedge way of the material must always run the length way of the garment, as the threads which compose the selvedge, or length threads, are generally stronger and coarser than the weft, or "across" threads, and this causes the material to hang better Pin the pattern to the material by inserting pins horizontally, at intervals of about 3 in. apart, ½ in from the inside edge of the pattern. Supervise the placing and pinning of the pattern on the material. Place the bib pattern above the skirt, observing the

same rule for the selvedge threads, and pin it in position. The pinning and the commencement of the cutting out may be shown on the blackboard, but later remove the work to the table and continue to cut round the outline of the pattern.

The girls having been shown where to cut, may begin to cut out Those who are unable to do this may make patterns for straps and pockets. The size of the pocket pattern is 8 in by 7 in, which will produce a finished pocket of 6 in by 6 in.

APPLICATION

Revise rules for cutting out as follows —

1 Place all pieces with centre fold straight with selvedge thread
2 Pin pattern securely to material
3 Cut all round the edge of the pattern, making long even strokes with the scissors

WORKING THE DECORATIVE STITCHERY BORDER

(Details and Demonstration of Lesson 10.)

PREPARATION

Previous knowledge—Narrow borders of tacking stitch used for the purpose of holding hems in place Y stitchery borders Stick printing, which involves the accurate placing of block designs

Aim—The aim of this lesson is to teach the following points:—the principles of ornament in its relation to needlework, the use of simple stitches to form a border pattern for the decoration of garments; the use of loop stitch as a filling stitch for decorative purposes, training in observation, accuracy and correct judgment, imparting a love of colour

Teacher's requirements—The finished pinafore A large piece of house flannelling, size 27 in by 24 in, to be hung upon the demonstration bar, exhibiting three or four borders of a suitable width—5 in. to 6 in.—worked in rug wools, showing the stitches to be used, a space is left for further working. Demonstration needles. Rug wool in red and black. Fine green wool. Blackboard and chalk Drawing pins.

Children's requirements—The work in hand, with at least one part of the garment prepared for working, as previously described One skein of C B, Clark's, or D M C, *coton à broder* in the desired colours. Tape measures Crewel needles, No 7.

INTRODUCTION

The children have already been told that a decoration is to be worked, and their garments are already prepared. It is a good plan, however, that they should not all work the same pattern with these stitches, but that they should make up their own patterns and practise them on oddments of material before working the patterns upon the pinafores Hang up the demonstration piece and ask the children to say what stitches have been used They have already made borders with tacking stitches, but as the borders now to be worked are wider, tacking stitch alone would be somewhat spidery in effect Therefore a rounder stitch is used to fill the spaces, and the two stitches together may be used in a variety of ways The teacher will demonstrate the working of the border which is shown upon the pinafore, but the children are to invent others for their own use The children will not work with the teacher.

PRESENTATION

Three guiding rows of tacking have previously been worked to mark the border edges and the middle of the border. Along each of these rows work two rows of tacking stitches ¼ in in length, with ¼ in. spaces. The middle row of stitches should alternate with the edge rows, as in the illustration.

In order to bind these together, cross-stitches are worked between, leaving middle spaces It is these middle spaces which must be filled in order to give a more solid effect. Loop stitch, sometimes known as "lazy daisy" is the stitch used; it is very similar to Y stitch in execution The stitch is worked as follows:—Put the needle through the material, from the wrong side to the right side, leaving on the wrong side an end of cotton to be darned in later This end must be held securely with the left hand while the work is in progress to prevent its being pulled through. If thought desirable, the girls may now work with the teacher, who will supervise each step in working the stitch as it is shown. Put the needle in again from the right side to the wrong side, exactly where the cotton comes out, holding down the cotton with the left thumb. This will form a small loop, which is held in place by bringing the needle through again to the right side, immediately above the lower part of the loop, and then putting it through to the wrong side so as to secure the loop with a small stitch. The loop may be large or small, according to the effect desired and the size of the space to be covered The girls may practise working single stitches first of all and later they may make simple patterns. The illustration shows how four stitches at right angles are worked in the space, which is further embellished by two rows of Y stitch, or slanting tacking stitches The class should be allowed to copy this border on odd pieces of material before going on to make up their own patterns When the teacher is satisfied with them, the patterns may be worked on the garments. Careful supervision is necessary

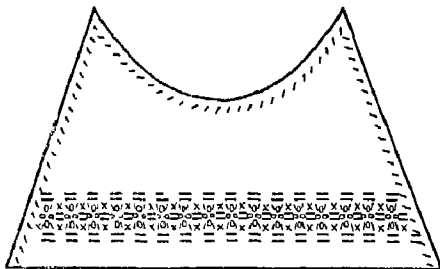
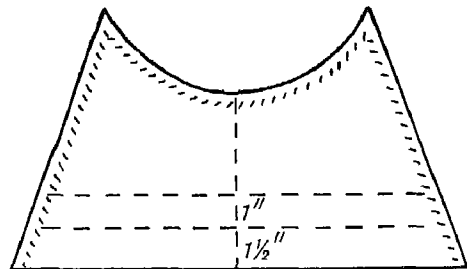
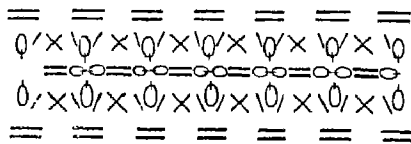
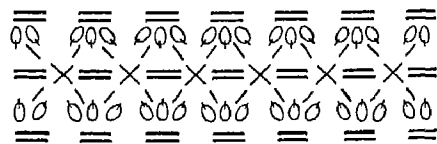
APPLICATION

The application is practical, and consists of the actual invention and working of the girls' own designs

JOINING THE BIB AND SKIRT OF A PINAFORE

(Details and Demonstration of Lesson 15.)

PREPARATION

Previous knowledge—Turning down hems of various widths, using a marker as a guide Joining parts of articles together by oversewing to form bags.

FINISHED BIB

PREPARATION OF BIB FOR EMBROIDERY

LOOP AND TACKING STITCH BORDER

SUGGESTION FOR ALTERNATIVE BORDER

DECORATIVE STITCHERY BORDERS

Aim.—The aim of this lesson is to teach the following points:—the substitution of a tape measure for a marker when measuring narrow widths; a method of joining two pieces of material together to form a seam; a method of joining a bodice and skirt when there is no fullness in either part, training in accuracy and in dexterity of manipulation.

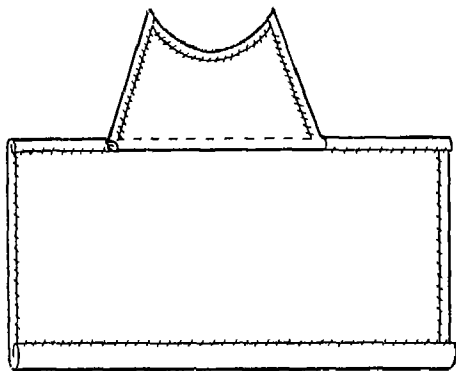
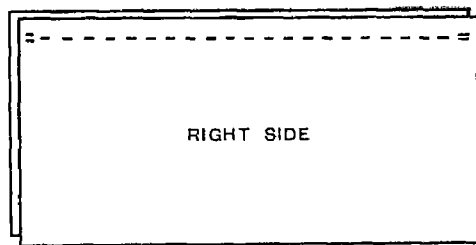
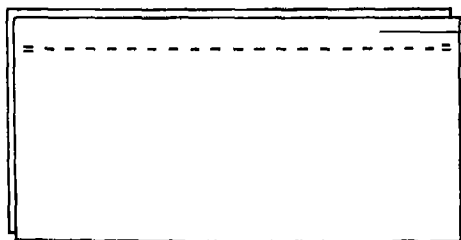
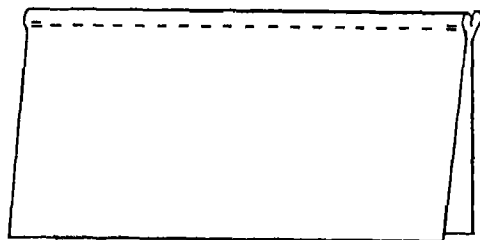
Teacher's requirements.—The finished pinafore. Two pieces of plain white paper size 24 in. by 12 in., for use as demonstration pieces, mark R S, indicating "right side," and W S., indicating "wrong side" on each piece. An enlarged tape measure. Demonstration needle and 4 ply red wool. Pins Blackboard and chalk.

Children's requirements.—The work in hand, the majority of the class having their work at the correct stage for joining the pieces together: needles, pins, tape measures.

INTRODUCTION

Question the girls in order to revise the previously used method of joining two pieces of material to form a bag. Tell them that the method used for the bag is unsuitable for the present purpose, as the bottom of the bib and the top edge of the skirt are not hemmed. Also, a seam is necessary for many purposes,—in joining a frock, for instance, hemming down each side before putting the pieces together would be a great waste of time and energy and the result would be bulky.

PRESENTATION

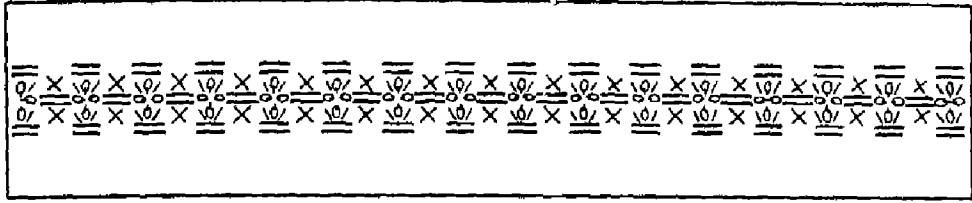
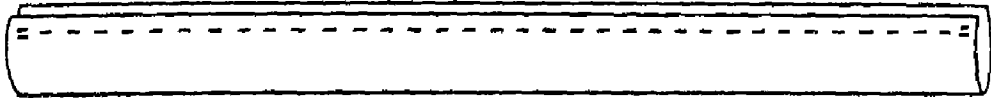
Show the finished garment to the children, and then tell them that the demonstration pieces of paper represent bib and skirt respectively. Write the title of the lesson on the blackboard, and then pin up one of

WRONG SIDE OF GARMENT SHOWING FRENCH SEAM

PREPARATION OF TEACHING SPECIMEN

SPECIMEN WITH HALF RAW EDGES BEING CUT AWAY

FINISHED SEAM ON WRONG SIDE

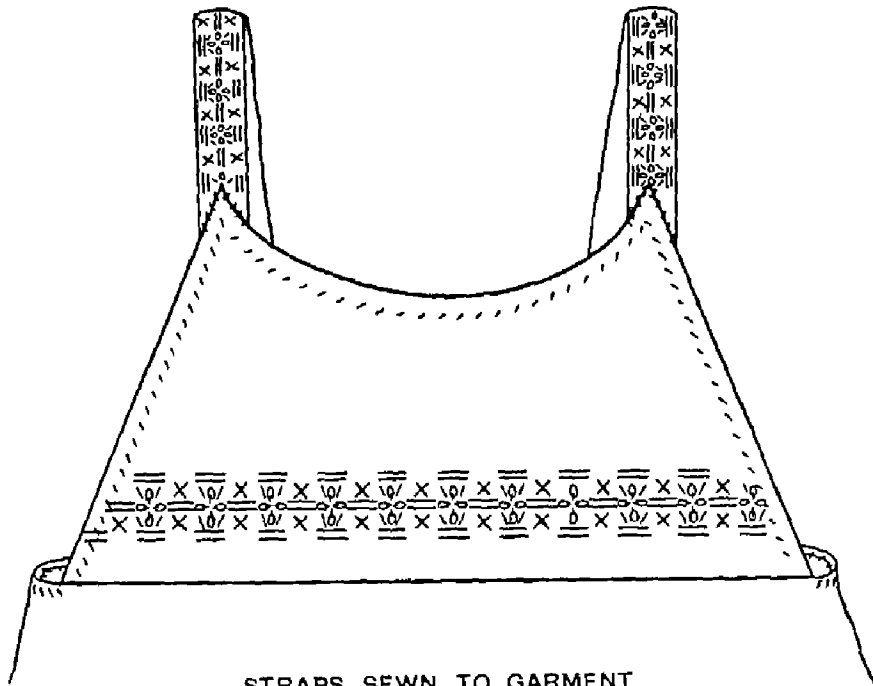
JOINING BY MEANS OF A FRENCH SEAM

the pieces of paper so that the wrong side is facing the class Place the second piece upon the first, so that the two wrong sides are facing, and the right side is towards the class. The pieces should be pinned on the board in such a position that the drawing pins do not have to be withdrawn before demonstrating further, that is to say, they must be placed low down upon the paper.

Pin the pieces together at intervals Allow the girls to place their pieces correctly and supervise this before proceeding further The centre of the bib must be placed exactly upon the centre of the skirt and pinned securely Demonstrate the measuring of ¼ in below the raw edges, and make a crease at this measurement to form a guide line for running Run along the line, forming small even stitches Supervise this, reminding the girls that if the stitches and spaces are too large, the work will fray and the seam will not last well Demonstrate cutting off the raw edges, half-way between the running stitches and the edges, and tell them that the reason for cutting is that when the work is turned to the wrong side and flattened out, the turning shall not be too wide to be neatly enclosed by the second line of running stitches. At this stage pass the finished pinafore to every girl in turn, telling her to observe the seam carefully to see how neatly it has been made. Supervise the cutting away of the raw edges. Remove the demonstration piece from the blackboard and show the flattening of the seam, then fold over to the wrong side to enclose the turning Place pins at intervals to hold the two pieces together. Replace the demonstration pieces upon the blackboard and show the running on the wrong side ¼ in below the previous stitching which now forms the edge State that the seam thus made must lie flat Press the work so that the seam itself (the projecting edge) lies on the skirt. Allow the girls to continue with the making of the seam, supervising where necessary, paying particular attention to fastening on and off, and to joining the thread.

APPLICATION

Tell the children that a French seam is a very good one and is useful for many purposes, particularly on thin materials, when it is made narrower, but it is not used on thick materials on which the seams must lie very flat.

DECORATED STRAP $18\frac{1}{2}'' \times 3\frac{1}{2}''$

STRAP EDGES RUN TOGETHER ON WRONG SIDE

STRAP TURNED AND ENDS NEATENED

STRAPS SEWN TO GARMENT

DECORATING, MAKING AND FIXING THE STRAPS

SUGGESTED COURSE OF LESSONS FOR THE SECOND TERM

SCOPE OF THE TERM'S WORK

IT is suggested that by now the pupils will have become acquainted with the functions of a pattern. This term may therefore be devoted to the furtherance of their knowledge in this branch of work It is not wise to force the pace in the matter of the making of patterns Some children find such an occupation easy, their calculations are correct, and their lines well shaped and accurate, others, we know, find pattern making dull, and they are easily disconcerted by the mass of technicalities which appear to them to be so unnecessary. Such children will rarely interest themselves in the making of their own patterns after school life is over, but they are nevertheless interested in making their own clothes, though by an easier process than the actual creation of a pattern.

Here then is an opportunity for the teacher to encourage interest in clothes by allowing the use of bought patterns, the excellent and easy medium which most amateur dressmakers use at the present day in order to cut their own clothes economically and smartly It is nearly always argued that such patterns are expensive, particularly for use in school Several firms, however, make special arrangements with schools for a reduction in price when any quantity is ordered; one firm charges 3*d* per pattern for quantities of one dozen or over. This price should not be prohibitive, for the saving in the amount of paper used for drafting, reduces the price of the bought pattern to 2*d*, allowing one pattern to each pupil There is no doubt, too, that a knowledge of both drafted and bought patterns should be gained together: the drafted pattern then becomes more realistic, while the bought pattern is found to be capable of alteration and adaptation, giving scope to the pupil's creative talents.

During this term, therefore, there should be an expansion of pattern making,—expansion of the girls' own ideas and methods of work, so that they may find their own way about it, and learn even by their occasional mistakes. The piece bag must be well supplied for this type of work, and the girls must not be limited to using school material which has to be paid for Dolls' clothes are suitable for work of this nature. Even when the girls have not dolls of their own, it is always possible for them to dress dolls for charitable purposes. In the school where "projects" are the order of the day, dolls may be dressed in national, historical or dramatic costume, paper patterns of which are easily obtained from Messrs Weldons, Ltd

Where community work is possible each pupil may make only one or two garments, thus reducing the cost of patterns The patterns should be the actual ones made by the pattern manufacturer, and should be produced "out of the packet." When a doll is to be completely dressed by one or two girls, or by a group, the whole packet should be given to the individual, or to the group, as the case may be. Several of the small garments will, no doubt, present difficulties in making up, but the teacher's part will be to help when asked, and not to be too insistent on niceties of technique.

LESSON 1

The teacher should show a finished doll, dressed in similar garments to those the girls are expected to make; she should explain that this term's needlework is to be doll dressing She will then discuss dolls,

their clothes, and the materials which could be used, and the girls should be encouraged to bring any pieces of material which they are able to collect for this purpose. Discuss patterns, their uses, and state that a good pattern is just as necessary for dolls' garments as for girls' garments. Show the packets of patterns which the children are to use, and tell them that they contain patterns of several garments for a doll, and that the patterns are real ones in miniature like those used by the children's mothers when cutting out clothes. The girls, having previously been told to bring their dolls to school on that particular afternoon, may decide whether they wish to work alone, in pairs or in groups. When these details are settled and the class is reorganised, the patterns and materials for use may be selected The whole of this lesson will probably be occupied by discussion of these details.

LESSON 2

The use of a bought paper pattern.—This lesson will consist of a short demonstration dealing with the kind of pattern in use, the details of which will be found on page 347

LESSON 3

Cutting out.—The class continues to select the materials required for the garments, and proceeds to cut them out, the teacher helping when necessary.

LESSON 4

Making up the garments.—Details of this lesson will be found on page 352.

LESSONS 5, 6, 7 and 8

Practical work.

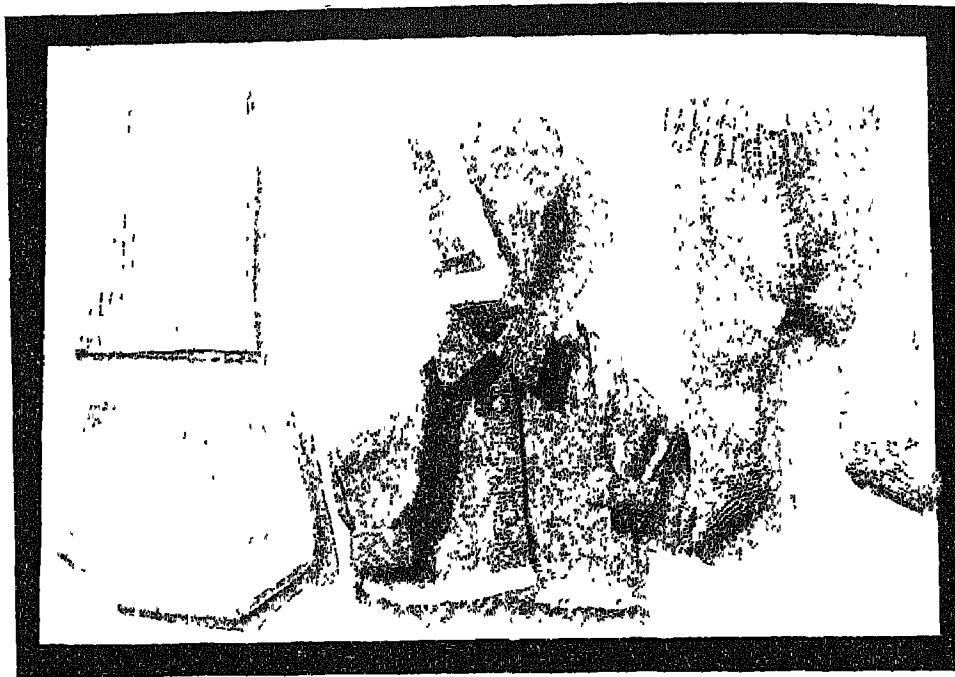
LESSON 9

Knitting.—When the work is well in hand, knitting vests and drawers (if required) may commence. Knitting is always a useful occupation, as it may be picked up at odd moments, and it is advisable to accustom the girls to this idea. Oddments of wool may always be used for dolls' clothes, and once children have learned the initial processes, and how to use printed leaflets, they can be trusted to work by themselves, with occasional help in the matters of joining wool, casting on and off, reducing and increasing the number of stitches, etc

When knitting vests for dolls the children should be taught to measure round the dolls, and to cast on (using the finest wool available and corresponding needles) the correct number of stitches per inch This is found by knitting a small square of about 2 in to discover the number of stitches per inch made by the individual knitter, and the process is called "finding the tension" Directions for knitting dolls' clothes are not easy to find, but the directions for babies' and children's simple garments, such as are given in the booklet *Woolcraft*, published by Messrs. J. and J Baldwin & Partners, Ltd , are excellent also for dolls' garments, when finer needles and wool than those recommended by the manufacturers are used The tension must first be found, in order to be sure that the garment will be the correct size. Any small alterations can therefore be arranged before the garment is begun. All the garments shown in the accompanying photograph (except the vest, which was made without a pattern) were made in this way, the directions being altered as shown in the following notes.—

Patterns taken from ***Woolcraft*****, Beehive Knitting Booklets** (Published by Messrs J. and J. Baldwin & Partners, Ltd.)

Pilch Knickers (*Woolcraft*, Fig. 11a.) Worked exactly to pattern using 2 ply wool and No. 16 needles

Pair of Pullovers (*Woolcraft*, Fig 10f) Worked to pattern, shortening the distance from the thigh and the knee, using 3 ply wool and No. 15 needles.

[*Reproduced by the courtesy of Messrs J & J Baldwin & Partners, Ltd*

KNITTED GARMENTS FOR A DOLL

Coat. Woolcraft, (Fig. 6b) Worked to pattern with modifications using 3 ply wool and No 15 needles. The number of stitches was reduced to 60 for the rabbit wool edging, then increased to 80 for the finer work and worked according to instructions The number of stitches was reduced by 5 on each front.

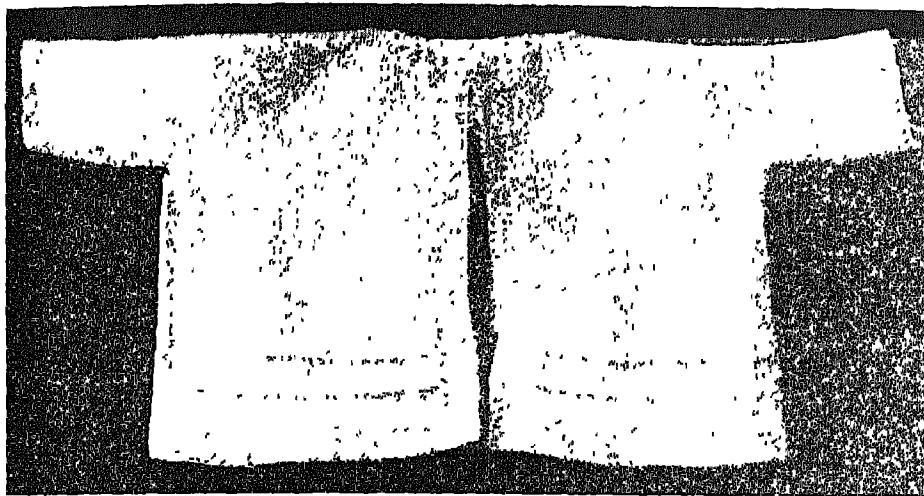
Bonnet (*Woolcraft,* Fig 7k) Worked according to instructions, except that the stitches were reduced for the rabbit wool edging which took the place of a squared border 3 ply wool and No. 15 needles were used.

Only the vest and pilch knickers are suitable for knitting during the third year, but the photograph shows the complete set.

LESSONS 10, 11 and 12

Practical work.—The accompanying plate shows various knitted garments which may be found difficult to handle. The ordinary complete set of clothes for a doll would be composed of· (1) a knitted vest, (2) combinations or knitted pilch drawers; (3) a princess petticoat, and (4) a dress The making of these will bring into play all the girls' previous experiences in knitting, together with the knowledge of new processes gained in their homes, or from observation. The girls should be taught to take up their knitting in spare moments during any needlework lesson. The progress in knitting will vary greatly among the girls, and therefore any processes and stitches now shown to them by the teacher should be incidental and should not be treated as class lessons.

LESSONS 13 to 23

Finishing.—These lessons may be devoted to completing the little clothes; the quicker workers will be able to make an extra garment, such as a coat or a hat.

Knitted Jacket for a Baby

LESSON 24

Pressing the work.—During this lesson the garments may be pressed, and the dolls dressed and arranged as a small exhibition for other classes to see This is a good plan, for children like to have their work admired, it is encouraging to the workers, and provides an impetus to pupils from other classes, particularly to those from lower classes

In pressing knitted articles it is a good plan to wrap them up in a damp cloth for an hour or two Then place them flat upon a board or table under a clean dry cloth and press the work with a warm iron until dry. The girls should be allowed to do this for themselves, under the teacher's supervision When pressing other articles, use a sleeve board if possible; slip the garments over the end of the board and iron them on the wrong side, working from the hem towards the waist or neck A tiny iron, such as is found in miniature ironing sets, is very useful for dolls' sleeves and other small surfaces.

TWO LESSONS IN DETAIL FOR THE SECOND TERM

THESE two lessons, like the detailed lessons at the end of the First Term's work, are now given in the order in which they will be required.

THE USE OF A BOUGHT PAPER PATTERN

(Details and Demonstration of Lesson 2.)

PREPARATION

Previous knowledge—Making patterns of:

(1) A pinafore for a doll, by shaping a piece of paper upon a doll (2) A pinafore for a girl of 9 years, by paper folding from direct measurements.

Aim.—The aim of this lesson is to teach the following points:—a method of using a

DRESS ON DOLL

pattern which has been manufactured to fit a doll 14 in in length; how to alter a pattern to make it fit a larger or smaller doll; confidence in dealing with bought patterns, training in observation and perseverance.

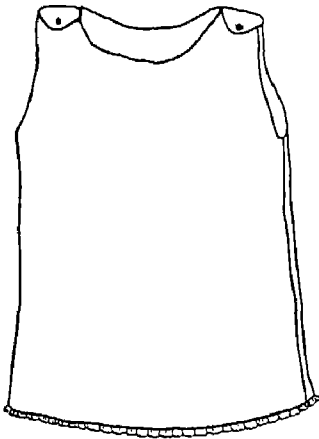
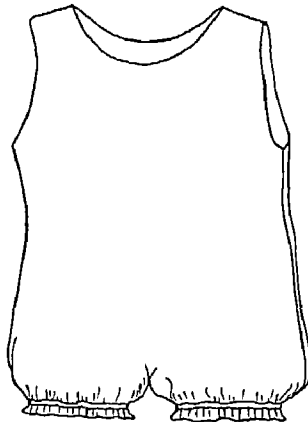
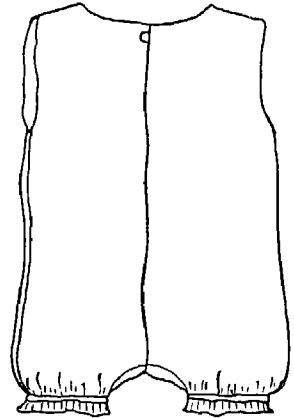
Teacher's requirements A doll 14 in long, dressed in the clothes similar to those to be made by the children. The following garments are worn by the doll —

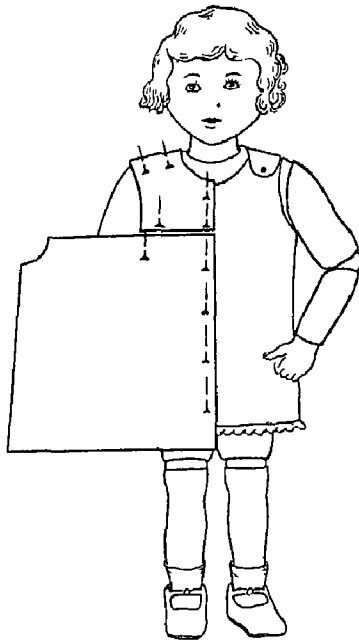
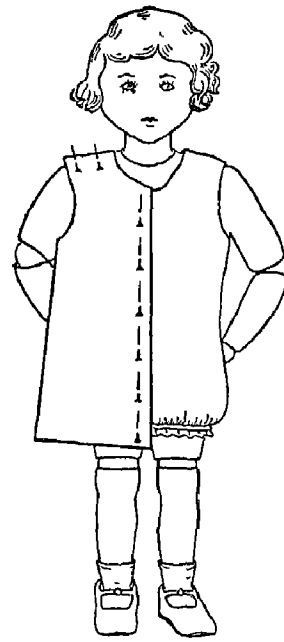
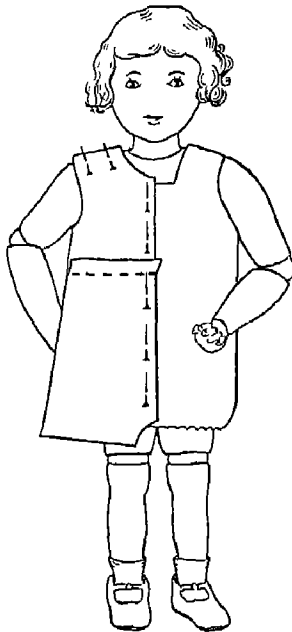
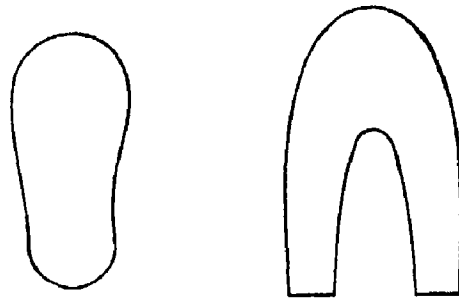
(1) A knitted vest, in 2 ply white wool (2) Combinations, in plain coloured lingerie cotton. (3) Princess petticoat to match, edged with narrow lace (4) Frock in figured Tobralco.

Teacher's requirements.—The pattern of the frock. This has been chosen for demonstration purposes because it is more likely to arouse the interest of the children than the petticoat or combinations pattern. Pins, scissors, tape measure.

Children's requirements —The children will be simply observing for the first part of this lesson. They will afterwards need dolls, paper patterns, pins, scissors and tape measures.

INTRODUCTION

Display the doll fully dressed, and ask the girls to observe her clothes once more, to notice the materials of which they are made and the neat effect produced by their good fit The teacher should remove the garments one by one in order to stress this last point, telling the children meanwhile, how important it is that the underclothes, as well as the dress, should fit well, otherwise the dress will not set neatly. In order to produce well-fitting garments it is necessary to cut them out from a well-fitting pattern. Question the children as to what ensures that a garment shall fit a person well, it is having a pattern of the correct size and shape for that particular person. Patterns made by people to their own measurements are nearly always correct, but often such patterns take a long time to make and so patterns bought from a shop are used It is quite easy to work from bought patterns; they are cheap and reliable, but they do not always fit the individual, because although the measurements of two people may vary only slightly, their shapes are sometimes very different. A bought pattern may need to be altered on this account.

PETTICOAT

COMBINATIONS - FRONT VIEW

COMBINATIONS - BACK VIEW

DOLL'S UNDERCLOTHES ADAPTED FROM A BOUGHT PATTERN

HALF PATTERN OF DRESS PINNED TO DOLL

HALF PETTICOAT PATTERN PINNED TO DOLL

HALF PATTERN OF COMBINATIONS WITH TUCK TO SHORTEN GARMENT

SHAPE OF PATTERN PIECES FOR DOLL'S SHOE

PATTERNS OF DOLL'S SET OF CLOTHES

PRESENTATION

Remove the pattern pieces of the frock from their packet. The pieces are as follows

1. *The dress.* There are six pieces:—(1) a half yoke back. (2) a half skirt back (3) a half yoke front. (4) a half skirt front. (5) a whole sleeve. (6) a whole cuff

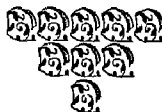
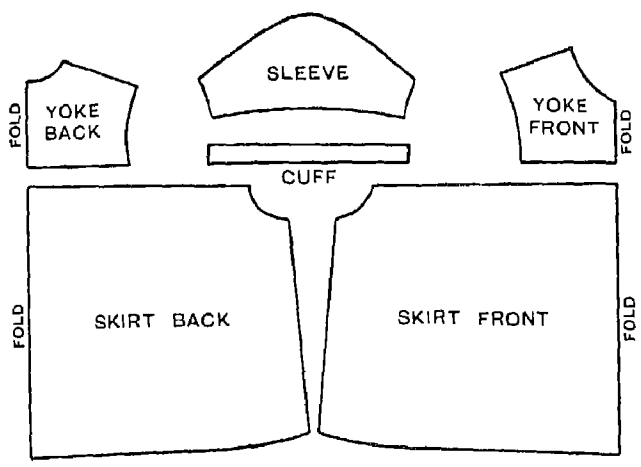
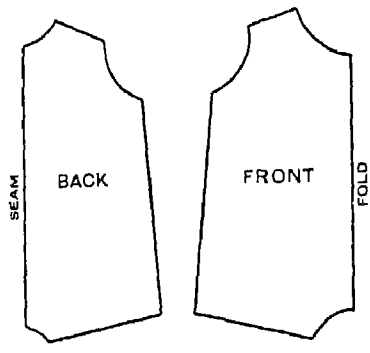
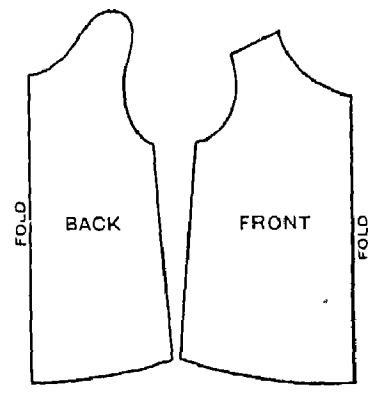
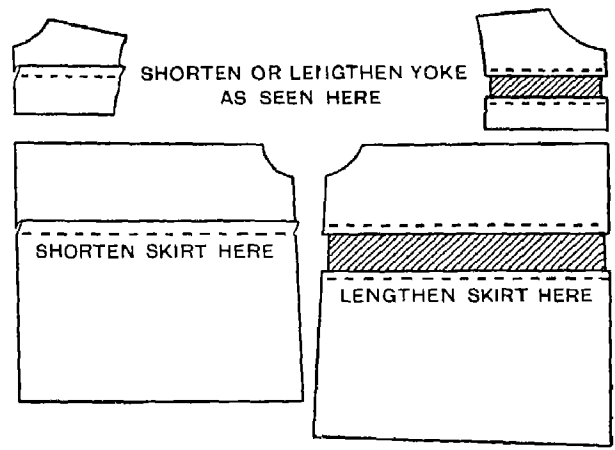
2 *The petticoat* There are 2 pieces:—(1) a half back (2) a half front.

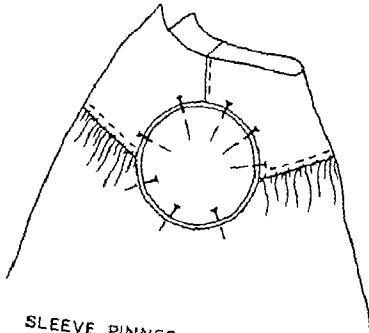
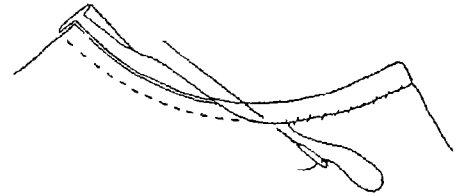
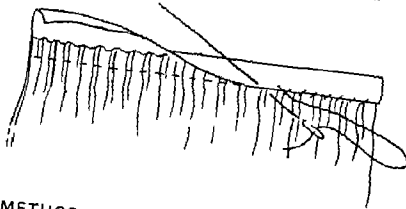
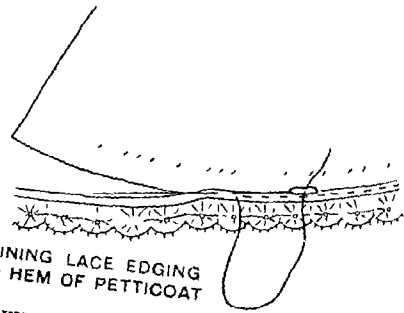
3 *The combinations.* There are 2 pieces:—(1) a half back. (2) a half front The combinations are similar in shape to the petticoat, but they are shaped at the bottom to form legs

Pin together the pieces which form the dress, first along the seam of the skirt, then pin the yoke at the underarm seams, and finally pleat the skirt and pin it to the yoke. Place this pattern on the right side of the doll, which should be arrayed for this occasion in her petticoat. Pin the half pattern on the right half of the doll, putting the pins down the centre front and back Explain to the children that this fitting must always be done because it is then easy to see whether any alteration is needed in the pattern; whether it is too short, or too long,—as it is in this case. If it is too short, it must be cut across in two places, across the yoke and the skirt, and strips of paper must be let in to give the dress the required length This process is more satisfactory than to add pieces of paper to the edges of the pattern, for the shape is often spoiled by so doing. In order to stimulate the children's imagination and observation, ask the question:—"Can anyone tell what must be done to the pattern when it is too long, as it is now?" Various answers will be given, among them —"Cut a piece off." This is a wrong method for the reason that has just been given. The girls must be made to realise the importance of not altering the outline of the pattern A tuck will not do this. Therefore, a tuck is made across each piece of the pattern. This tuck must be made in the corresponding place on both front and back pieces, and must be the same size in each case, so that the underarm seams continue to match in length Demonstrate taking the tucks in the pattern on the doll, being careful to hold her in a suitable position for the whole class to see.

Allow the children to begin work by pinning together the patterns of the garment they are to use. Supervise this part of the work to prevent waste of time. The children may then put the patterns upon the dolls, and alter them where necessary without the teacher's supervision, but the teacher should make a point of allowing the girls to come to her individually with their work, while the rest of the children who are waiting may knit When all the patterns have been certified as ready, the cutting out may take place.

APPLICATION

This again has a practical application, that of the correct alteration of the other patterns to be used for the dolls' garments

FITTING OF PATTERNS

MAKING UP THE DOLL'S FROCK

SLEEVE PINNED INTO ARMHOLE

BINDING THE NECK WITH CROSSWAY BIND

METHOD OF JOINING YOKE TO SKIRT

JOINING LACE EDGING TO HEM OF PETTICOAT

PROCESSES WHICH ARISE IN MAKING UP DOLL'S FROCK

(Details and Demonstration of Lesson 4.)

THERE are various processes connected with the making up of these little garments, some of which the girls will know and find easy, while others are more difficult and will have to be shown to them individually as the occasion demands.

The processes which will arise in the making of the frock are as follows —

1 Cutting out.
2. French seams.
3. Hem at the foot of the skirt
4 Setting in the sleeves
5 Binding the neck, using either odd-ments of "bought" bias binding, or strips cut on the cross
6 Setting on the cuffs
7. Joining the yoke to the skirt.
8. Fastenings.

Processes 1, 2 and 3 will be easily managed; processes 4, 5 and 7 will be more difficult of execution, and these are dealt with in detail here

SETTING IN THE SLEEVE

(Process No 4)

Setting in the sleeve is certain to be troublesome The process is illustrated on this page, and instructions similar to the following may be given to groups of girls or individuals, the teacher using one of the little dresses on which to demonstrate

The sleeve needs to be only a small amount larger than the armhole into which it has to be set; compare the measurements of each and cut a very small piece of the armhole away underneath, i e , where the side seam occurs. Hold the yoke so that the inside is visible, and pull the sleeve through the armhole. Pin the two together at the seam, keeping the sleeve as the top layer of material. Pin the sleeve into the armhole all round, easing it over the shoulder. State that this is necessary because a shoulder is rounded in shape, and a sleeve would drag if it were too tight. Run the sleeve into the armhole, using an occasional back-stitch. Oversew the turnings.

BINDING THE NECK

(*Process No.* 5.)

Show the girls that if material cut on the straight is used for neatening a curved edge, the binding has to be gathered at the top in order to make it fit round the curve, therefore material cut on the cross is used for binding. This is sold on cards and is called "bias binding."

To bind, open out the binding to the inside, when three creases will be visible Place the raw edge of the binding to the raw edge of the garment, so that the right sides of each are face to face Run the two together along the first crease. Snip the turnings down to the running, turn the garment to the wrong side and hem the binding (which is turned in at the third crease) just on the running stitches to enclose all the raw edges.

JOINING THE YOKE TO THE SKIRT

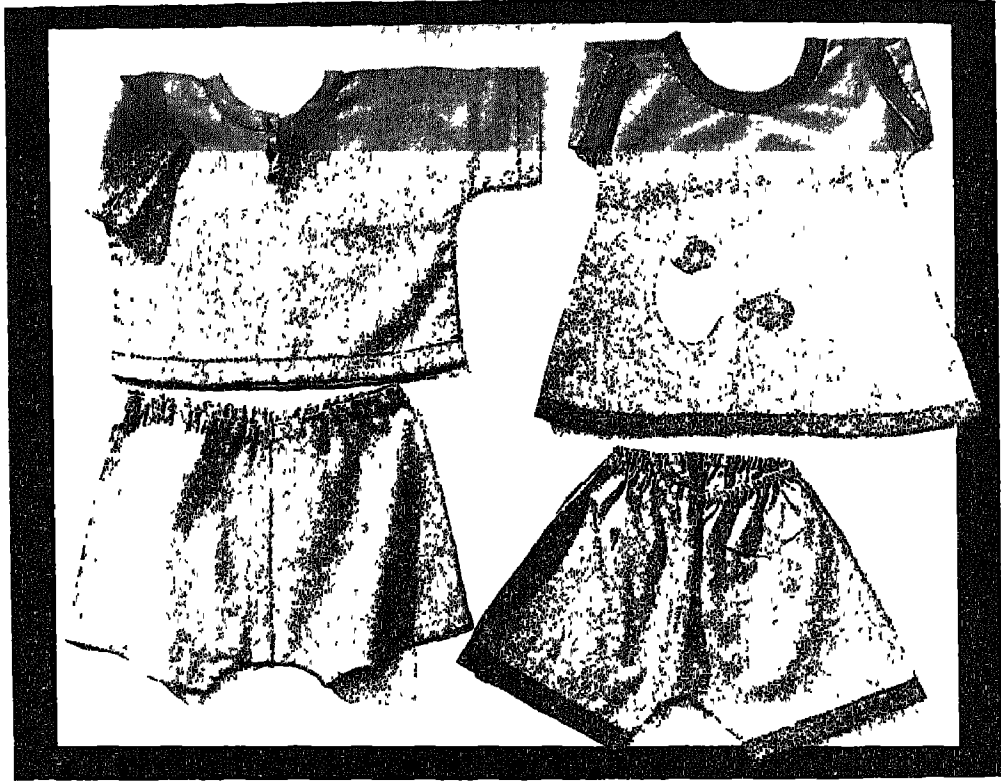
(*Process No.* 7)

The skirt is much wider than the yoke, so that it will hang full, it has therefore to be made the same size round as the yoke before the two can be joined This is called gathering, or drawing up After marking the middle of both yoke and skirt run right along the top of the skirt a little below the raw edge; do not fasten off the cotton, but place a pin in an upright position at the end of the work and wind the cotton round it, after drawing up the skirt to the approximate size. Pin the skirt to the yoke, keeping the skirt as the top layer and putting in the pins in an upright position. First of all the middles of yoke and skirt should be pinned together. Allow the yoke to project ½ in. beyond the raw edge of the skirt. When the pinning has been completed, run the two together along the previous row of running, using an occasional back-stitch. To neaten the edge, turn in the edge of the yoke, turn it over again and hem the folded edge to the running stitches.

SEWING ON THE LACE EDGING

Hold the garment so that the hem to be decorated with lace is farthest away from the worker, and place the lace edging ½ in below the extreme edge Run the two together along the inner edge of the lace on the right side of the garment. Always begin at a seam. To join the lace, overlap for ½ in and fold one of the two ends of the lace in, making a line with the seam where the sewing on was commenced; hem this securely, turn the work to the wrong side and finish off the join by making a run-and-fell seam ¼ in. wide

The teacher will realise that many other processes will present difficulties, all of which it is impossible to enumerate. The method of working matters comparatively little, but the method of dealing with difficulties as they arise is more important in every way Simple explanations must always be given, and no one should be allowed to use any process or stitch blindly, or the interest will flag and eventually be lost. It is particularly easy for ground to be lost in this way during individual lessons of the type described.

SUGGESTED COURSE OF LESSONS FOR THE THIRD TERM

TUNIC AND KNICKERS FOR A BOY (AGE—3 YEARS)

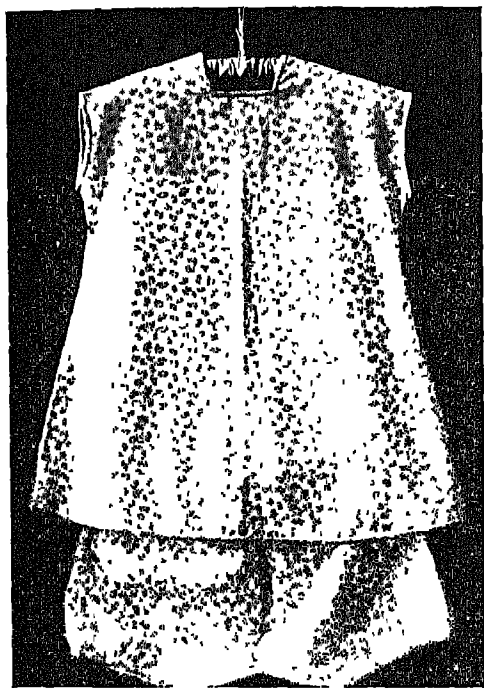
TUNIC AND KNICKERS FOR A GIRL (AGE—3 YEARS) APPLIQUÉ BY MEANS OF RUNNING STITCH

SCOPE OF THE TERM'S WORK

THE girls should now possess a working knowledge of the functions of a pattern, it would, therefore, be a wise plan to draft the pattern of the next garment to be made.

The selected garment should be of a type which is simple in construction; the lines of it should develop naturally from those already observed in the making of a pinafore pattern. The further developments generally take the form of a sleeve (in one piece with the garment) and a neck shape which will give occasion for practice in shaping patterns and in neatening, not already learnt. In the pattern chosen here there is a short Magyar sleeve (which gives a new construction line in the making of the pattern), a square neck shape and a French seam at the underarms The French seam has already been taught, and this gives the

opportunity to present the usual position for such a seam. There is no need for further teaching of the process, but revision will be necessary, both for the actual handling and for making a new width of seam to suit the material used. From their experience children will learn naturally and easily.—

1 That there are no hard and fast rules
2. That the widths of seams, hems,

DRESS AND KNICKERS FOR A CHILD (AGE—3 YEARS)

facings, etc., depend upon the kind of garment, and upon the kind of material chosen

3 That the required sizes of needles and threads differ in accordance with the materials, and that in order to obtain good results (known technically as a good "finish"), needles and threads must be carefully selected

Styles of garments chosen.—Fashion now begins to play a rather more important part in school needlework, both children and their relations being fully alive to the fact that garments made in school may not always be particularly desirable or wearable, on account of their being out-of-date in style and material. It is necessary that the teacher should impart some training in taste as well as in artistic ideas, and the incorporation of these ideas with the decree of fashion is the goal to be reached.

Plainly cut and simply made garments, of good material, colour, and shape (and therefore of good fit), without any unsuitable or superfluous ornamentation, are the only types necessary for the children of to-day to make and to wear Fashion, however, should not be the only consideration in choosing styles of garments, in fact, where girls of varied ages have been given several fashion books from which to choose styles, it has been found that no one picture by itself gave exactly what was required Often a style has been imagined, in the creation of which a visit to the cinema or the reading of an illustrated story book has played a part, causing the fashion catalogue to fail in providing a complete picture This imagination is to be encouraged in every way, for originality is necessary (within certain limits) particularly now that ready-made garments of every description are sold by dozens in even the market places of every town and suburb.

The garment chosen here is of a tunic type, a "Magyar" garment, or a one-piece garment reaching from the shoulder to the knee The tunic is cut for a child of three years old, little garments of this kind being easily saleable, and not too large for making up fairly quickly The illustration was chosen by a child who was reading the story of *The Girl who trod on the Loaf* in *Fairy Tales of Hans Christian Andersen* (published by Messrs. George Newnes) The book is illustrated by Helen Stratton, and one picture shows a girl in a tunic cut on similar lines to those of to-day The child visualised the tunic adapted to present-day materials and requirements, and the result was original, and wearable

LESSON 1

Making the pattern of a tunic.—Details of this lesson are given on page 358.

LESSONS 2 and 3

Cutting out.—The pupils place the patterns on their material and cut it out by themselves

LESSON 4

Revision of making French seams.—The pupils begin their seams, working alone.

LESSON 5

The underarm curve.—Details of a short demonstration on the management of the underarm curve are given on page 362.

LESSONS 6 and 7

Making the seams.—The children continue their French seams

LESSON 8

Turning up the bottom hem.—The hem is 1 in wide, with a ¼ in. first turning. The hem may be turned either on the wrong or right side of the garment, the former when the holding stitch is to be hemming or oversewn running stitch, and the latter when any decorative stitch is used. In this case the last ¼ in. of the French seam will have to be turned to the right side of the garment, so that it will be hidden by the turning of the hem. This process may be shown to groups or individuals as the need arises, and is not described here

LESSONS 9, 10 and 11

Turning up the bottom hem.—The teacher will now find opportunity for the supervision of "habits of work," such as the correct holding of needles, wearing of thimbles, rhythmic and not jerky sewing, fastening on and off, etc. All these are details which cannot fail to influence all later needlework, and it is only during these periods of working the longer processes that girls can be dealt with individually in these "habits of work"

LESSON 12

The cutting and use of crossway strips.—The details and demonstration of this lesson are given on page 362.

LESSON 13

Joining crossway strips.—The details for joining crossway strips for the sleeve and neck facings are given with the demonstration of the previous lesson, page 362

LESSON 14

Arranging the crossway facing on a square neck.—The details and demonstration of this lesson are given on page 365.

LESSONS 15, 16, 17, 18, 19 and 20

Practical work.—This will include the decoration of the garment. The decoration shown at the hem, neck and sleeves of the garment in the illustration (page 364) is worked as follows —

1 After tacking the lower edge of the facing in position (using ordinary tacking cotton), measure ½ in. and 1 in spaces alternately along the fold. A marker should be used for this purpose, and small pins, known as "lillikin" pins, for marking the points. The pins should be placed with the points at right angles to the edge of the garment. Mark with a tacking thread a line ½ in below the fold of the hem (The length of the tacking stitches should be ½ in with ¼ in. spaces) Beginning from ¼ in. beyond one of the pins, but now working along the tacking thread just made, place a second line of marking pins, giving alternate 1 in. and ½ in. spaces as before but alternating

with the first row. On the illustration page 364 it will be seen that the centre of a ½ in space is exactly opposite a 1 in space Place a line of ⅛ in running stitches from the top pins to the lower pins in zig-zag fashion. This fills the 1 in spaces with stitches, and the ½ in spaces remain spaces in which are afterwards worked three single chain loops slightly less than ¼ in. long. These are placed in a radiating position upon the fold of the hem or facing in order to hold the hem in position permanently. The running stitches are oversewn, giving an impression of greater strength to the line, and more formality to the pattern or design

Materials and colours suggested—The material used was a casement cloth of fine, but soft texture of square weave. The colour was of a delicate leaf green, of not too pale a tone. For the ordinary sewing, coloured cotton No 40, or one strand of *coton à broder* or Clark's stranded cotton was suggested in a matching colour, and used in conjunction with a No 7 crewel needle. For decorative stitchery, paler green was used for the running stitches and white for the oversewing and dull pink for the chain stitch. The thread used was *coton à broder.*

LESSONS 21 and 22

Finishing off the work.—As the girls make larger garments and articles more attention should be given to finishing off, no garment being dispatched from the school as finished unless it has first been overlooked by the teacher, has been pressed and folded nicely, and packed correctly by the pupil Ironing is absolutely necessary in order to remove creases caused by handling, and when proper ironing equipment is provided by the authorities this presents very little difficulty beyond supervision

Equipment for ironing.—Two boards are necessary, a skirt board (a flat board not less than 4 ft long, 1 ft. in width at the wide end, and 9 in. in width at the narrow end) The board may be simply a flat piece of wood rounded slightly at each corner, and covered with two or three layers of blanket, and a detachable sheet made of stout calico. A sleeve board of the same shape as the skirt board, but much smaller in size is also desirable for managing small surfaces Both boards might be made very cheaply by boys during woodwork courses If purchased locally, however, the cost ranges from *8s 6d.* for a skirt board on a stand, to *1s 3d.* for a sleeve board. A flat iron is the best type of iron for ordinary classroom use, and should be heated on a gas ring if possible This is the safest type of iron for children's use, it is available at any moment and the heat may be easily regulated. Thus the girls will learn to use an iron naturally and well, ironing the parts of the garment as may be required. The teacher should always stipulate that she herself should test the heat of the iron before use

LESSONS 21, 22, 23 and 24

Pressing and extra work.—The final pressing of the garments can be spread over the remaining lessons, the other members of the class being allowed to make pilch drawers to accompany the tunics The pieces left over may be used up, joining them if necessary. The girls may be given hectographed copies of the pattern, or they may use a bought pattern as they wish, and should be allowed to work as unaided as possible

FOUR LESSONS IN DETAIL FOR THE THIRD TERM

FOUR lessons, the organisation and arrangement of which are set out in detail, are now given in the order in which they will be required.

MAKING THE PATTERN OF A MAGYAR TUNIC

(Details and Demonstration of Lesson 1.)

PREPARATION

Previous knowledge.—Making the pattern of a pinafore to self-measurements. Observation of shapes of patterns to fit various parts of the body.

Aim.—The aim of this lesson is to teach the following points —the necessity for further construction lines when a pattern is made to fit the body more closely; the need for accurate measurements.

Teacher's requirements.—Two pieces of paper cut the exact size of the garment to be made,—22 in. by 24 in. for a tunic to fit a child of three years of age Blackboard, chalk, coloured chalk, ruler, and drawing pins.

Children's requirements—Each child will require a piece of paper cut the exact size for the garment to be made Pencil, ruler

INTRODUCTION

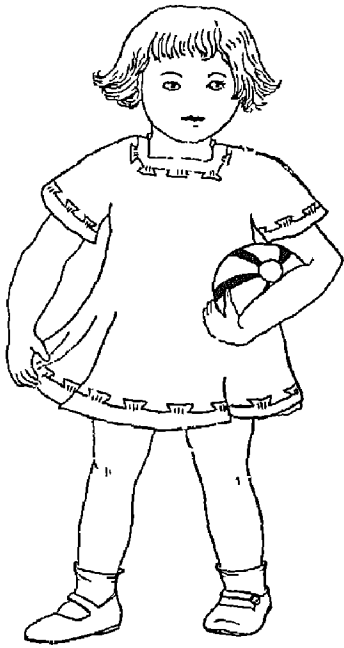
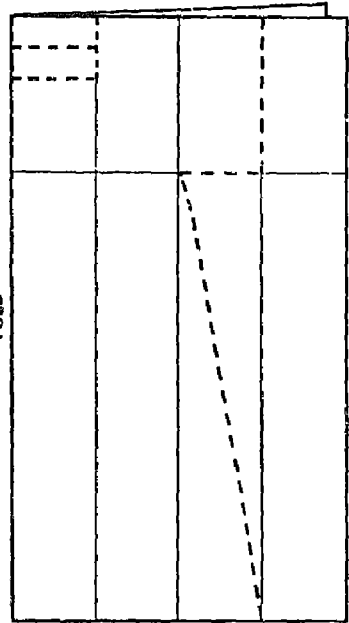
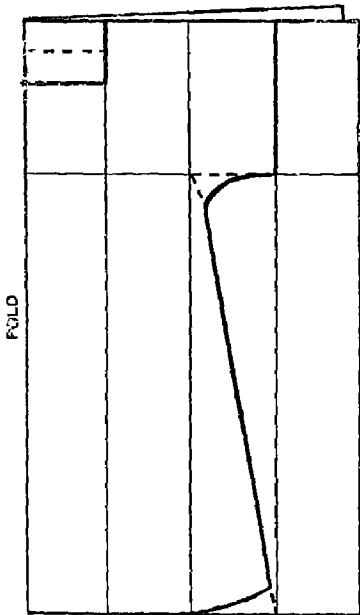
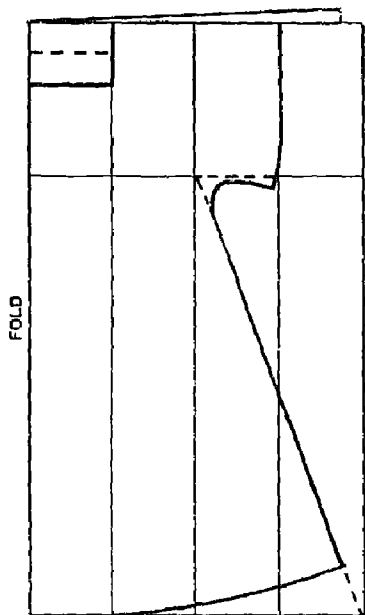
Begin by showing the finished garment and ask the children what sort of garment it is When this has been discussed, ask the age of the child who could wear it. It is for a child three years old Many girls will have brothers, sisters or cousins who wear this kind of garment; it is a very convenient one for small children as it is all in one piece, and having no fastenings it is easily put on and taken off, and is also easily washed and ironed. Suggest that the style chosen by the children need not be exactly similar to the finished tunic; they may adapt the pattern, using their own ideas, or ideas originating from tales they have read, or pictures which they have seen. Only the basic shape (the construction lines) remains the same, and always depends upon the size of the garment required.

Two measurements only are necessary:—

(1) The length of the garment. (2) The measurement round the bust.

1 The length of the garment is taken from the shoulder, measuring from a point close to the neck and from thence to the knee (or possibly above the knee as fashion may decree) although it is always wise to make children's garments longer than is actually needed at the moment of measuring, to allow for the rapid growth of little children

2 The bust measurement is taken by passing a tape measure round the body just under the arms, not too tightly, and adding 1 in to this measurement to allow for growth.

The measurement of small children of various ages presents some difficulty to a class teacher, but the following measurements are the average for children of 2, 3, 4 and 5 years of age, and may be presented to children who may wish to make garments varying in size

THE FINISHED TUNIC

PAPER WITH FOUNDATION LINES MARKED

TUNIC PATTERN WITH STRAIGHT SLEEVE AND SKIRT

PATTERN WITH CAPE SLEEVE AND FLARED SKIRT

MAKING THE PATTERN OF A MAGYAR TUNIC

Average measurements for children from two to five years.—

Age	*Length to knee.*	*Bust measure*
2 years.	18 in.—20 in.	22 in.—23 in.
3 "	20 in.—22 in.	23 in.—24 in
4 "	23 in —24 in.	25 in.—26 in
5 "	24 in.—25 in.	26 in —27 in.

When in doubt it is wiser to use the larger of the two measurements given for a child of a certain age; that is to say, to take the measurements of a child three years old as 22 in in length and 24 in. in bust measure These measurements are sufficient to allow for turnings of ½ in. at seams, ¼ in at the neck and sleeve edges, and ¾ in at the foot.

PRESENTATION

Before giving out any equipment to the class, explain that the two pieces of paper displayed are cut exactly the size required to give a half pattern,—a half front and a half back, which give a whole front and back when they are cut out from double material. Fold the tunic into half, putting one sleeve inside the other, and pin it so that the front and back folds lie together and to the left hand, as in the illustration of the pattern. Fold the paper in half lengthways, and pin it on the blackboard, keeping the fold to the left hand Place the drawing pin near to the cut edges, in the middle of the length Fold in half again, by turning the folded edge over to the cut edges. Fold once again, making three creases and four spaces. Open out to the first position and place a second drawing pin opposite to the first at the fold At this stage it is most important for the teacher to establish the relation between the sizes of the spaces and the size of the bust measurement, and she may bring out this point by questions of this nature.—

Q What is the full width of this paper upon the board?

A 24 in

Q If that were put round the body, under the arms, what measurement would it give?

A. The bust measurement—24 in

Q. What is the width of the paper when folded once lengthwise?

A. Half the measurement of the bust

Q What is the size of two divisions (or spaces between the creases)?

A. A quarter of the bust measurement

Q. Therefore, if there is a quarter of the bust measurement in the width of two divisions on the top paper, and a quarter underneath (point this out upon the pinned up paper and upon the garment) how wide is the pattern itself when opened out?

A. Half the bust measurement.

Explanation.—When each piece is shaped and placed upon double material and cut in this way, the whole of the bust measurement has been used and the garment fits If, therefore, two divisions are used to give the required size, the remainder of the width of paper may be used to give the garment the required width at the hem, and the length of the sleeve.

Demonstrate as follows.—To obtain the line which gives the position for the sleeve, the measurement from the shoulder to the underarm is required. This need not be taken upon the body, as the correct position is obtained when two divisions along are measured down the fold (The girls may measure each other to test this.) To obtain this line, fold down the top corner of the paper diagonally from the middle division line so that the cut top edges lie along the second crease,—the middle division line Crease across the pattern at the depth thus obtained, giving the bust line Open out the paper to the first position Now, place the folded garment upon the creased paper, allowing the girls to see the formation of the *shape* upon the construction lines, which depend upon the size

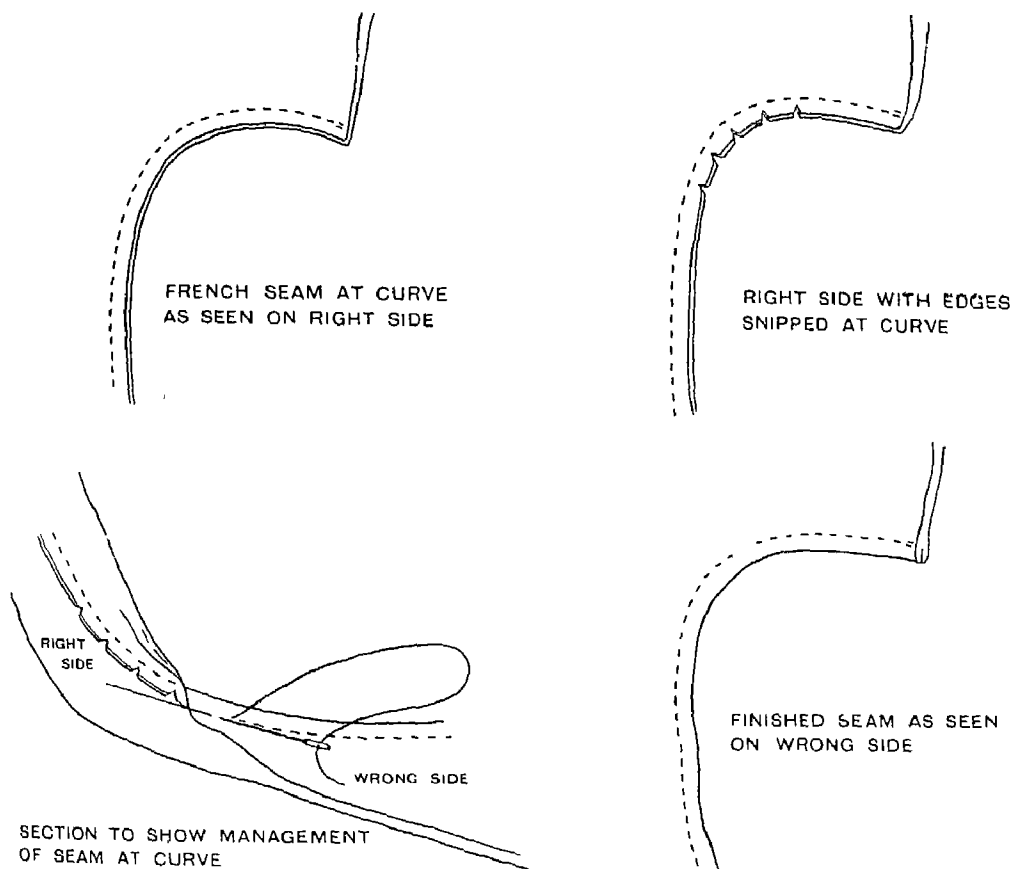
To shape the pattern.—

1. *Neck*—Back neck—1 in down and 1 division from the edge.

Front neck.—Draw a line from the fold to a point 2 in. down and 1 division from the edge

2. *Sleeve*—From a point 1 division from the opposite edge, draw a line down to the bust line.

3. *Underarm seam*—Draw a dotted line from the centre division at the bust line, down to 1 division from the cut edges at the foot. To obtain a good curve at the underarm, measure half a division from the sleeve edge along the bust line and mark a point; measure the same amount—half a division—down the dotted seam line, and draw a curve from the bust line to the seam through both points. Continue the underarm seam line straight down the dotted line. To obtain the hem line, measure the distance from the bust line down to the fold, and mark this distance from the *bust line* along the underarm seam line, leaving a surplus piece at the end of the seam Make a gradual curve from the front fold to this point on the seam. This gives the required shape.

When this has been demonstrated, give out to each child her piece of paper of the exact size she requires. Use the second piece of paper for demonstrating the processes step by step, the children following The teacher should supervise the work between each step. The first pattern may be used to demonstrate the cutting of the pattern. A second pattern is here illustrated

A French Seam at an Underarm Curve

as an alternative; it has an attractively shaped cape sleeve, and a flared effect at the hem This suggests further possibilities for shaping, and the application of the lesson consists in adapting the pattern to individual requirements.

THE MANAGEMENT OF A FRENCH SEAM AT AN UNDERARM CURVE

(Details and Demonstration of Lesson 5.)

This lesson illustrates a quickly prepared and executed demonstration for which no formal preparation is made, and for which temporary apparatus only is required Many such informal demonstrations may be given, at no set time, when either a group or the class as a whole requires such information The teacher will need only two pieces of plain white paper of fairly large proportions, a demonstration needle and wool.

Cut the paper into a shape resembling a curved underarm seam Place the two edges together and run as for a French seam. The first running will be worked at a depth of ¼ in. from the raw edges, and upon the right side of the garment. Snip nearly down to the running stitches five times in the curve. Cut away a small amount of the turning all along the raw edges, so that when the wrong side is worked no untidy edges may be seen to protrude upon the right side Turn the garment to the right side, press well, especially round the curve, and the parts which have been snipped will open out to allow the seam to lie flat when run a second time Run on the wrong side, to enclose the turnings

CUTTING AND USE OF CROSSWAY STRIPS

(Details and Demonstration of Lessons 12 and 13.)

PREPARATION

Previous knowledge.—

1. Neatening a raw edge by means of turning up a hem.
2. Neatening a curved edge by means of tape or a hem.

Aim.—The aim of this lesson is to teach the following points:—methods of neatening edges of varied shapes by means of the application of extra material—a facing cut from cross-cut material; economical ideas in using up oddments of material for this purpose; training in resourcefulness and skill in handling.

Teacher's requirements —The finished tunic. A card of bias binding A large (24 in. by 24 in) piece of surface paper brightly coloured on one side, white on the reverse side Demonstration pins, drawing pins, tape measure and marker. Blackboard and chalk. Scissors.

Children's requirements —The work in hand together with the pieces of material left from cutting out Odd pieces of contrasting colour if desired Sewing equipment.

INTRODUCTION

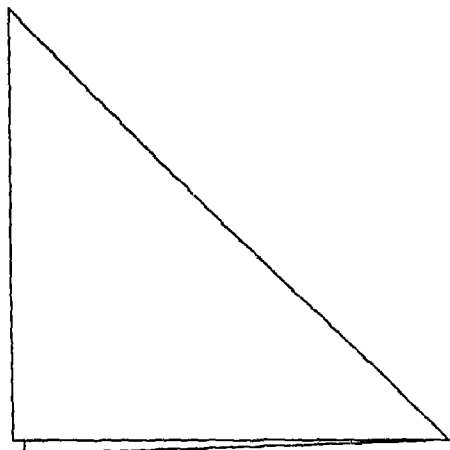
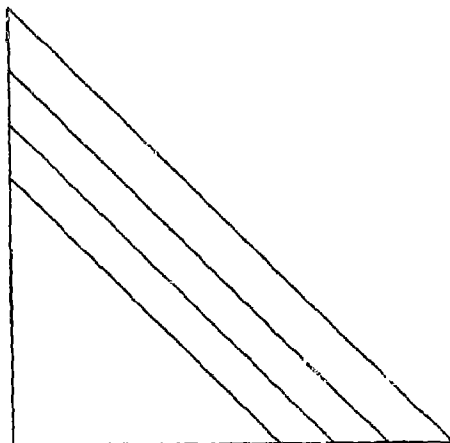
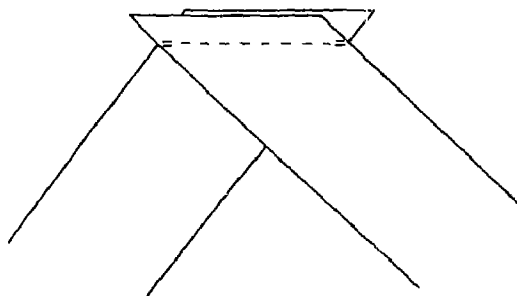
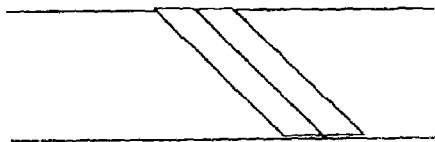
Question the class to stimulate an interest in the subject of the demonstration by asking them whether they know the purpose of bias binding. This is more commonly used than binding cut by the worker, and the children are likely to have seen it displayed in shops and used in their own homes Show a card, telling them the price, and explaining that it can be used for many purposes. Tell them that bias binding is convenient because it is inexpensive, and that it is economical in use when long lengths are required However, when short lengths are wanted, pieces left over from cutting out are more economical. The pieces are folded in a special way, and strips are cut and joined together in order to obtain the desired lengths.

PRESENTATION

Pin the paper upon the blackboard with the coloured side visible Ask the children to pretend that the paper is material, and to point out how many ways there are of cutting it straight, as follows —

1. Along the selvedge thread.
2. Along the weft thread.
3 On the bias fold (This is often confused with the true crossway.)
4 On the cross.

Fold the paper to show the first three ways, and explain that the first two methods are used when perfectly straight strips are wanted, as for example, for belts The third method is used only when cutting out a garment, never to cut material into strips. The fourth way, however, is the *cross* of the material, which must be folded exactly diagonally, or the strips will not lie flat when they are used to neaten curves. Material cut in this way accommodates itself to various shapes produced by curves of all kinds.

To cut the crossway strips.—Fold the upper right hand corner of the paper diagonally, so that the top edge lies along the lower edge, and explain that when material is folded in this way the two sets of threads meet, and

PIECE OF MATERIAL FOLDED READY FOR CUTTING CROSSWAY BINDING STRIPS

METHOD OF CUTTING STRIPS

METHOD OF JOINING TWO STRIPS

FINISHED JOIN ON WRONG SIDE

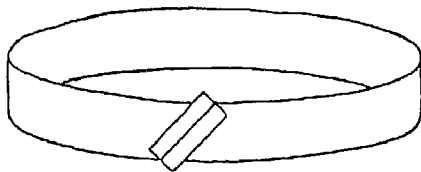
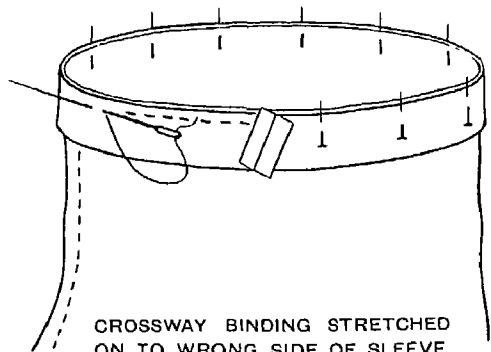
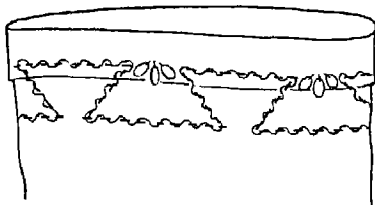
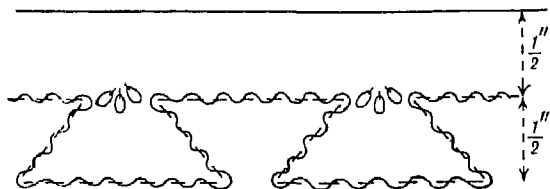
CUTTING CROSSWAY STRIPS

the resulting fold is on the "cross." All strips must, therefore, be cut along this fold line. Cut through the fold; measure with the marker to obtain the width of strip desired, and cut three or four strips, leaving the ends wedge-shaped The children may now do this, the folding being supervised by the teacher before any cutting of strips takes place The width of the strip must be the desired finished width plus ½ in for turnings.

Joining the strips. (Lesson 13)—In order to produce a long length the strips must be joined. All the joins must run in the same direction Therefore the edges to be joined must first be cut along the selvedge thread Place the two strips to be joined side by side with the left-hand strip lying with its right side facing the worker and the sharp point towards the right hand. Place the right-hand strip with the wrong side facing the worker and the point facing the first strip Slide the right-hand strip over the left-hand one (see illustration on page 363), letting the sharp point overlap the blunt point by ¼ in. Join the two strips by running ¼ in. below the raw edges. Open out the strips and press the joins.

APPLICATION

Tell the children that this method of joining applies to long lengths, and also to lengths to be made into circles, which are seen upon the sleeves of the tunic. When the neck is to be faced, the join is made in the same way, but not until the facing has been tacked to the garment, as it is not always possible to be certain of the length required The children may now cut and join their strips (1 in wide) joining a circle for each sleeve and making an approximate length for the neck.

No further preparation is necessary for facing the sleeves and neck, for this follows naturally from the previous demonstration. The children can be shown, individually or in groups, how to arrange the necessary joins, as it is likely that many sleeve and neck shapes

BINDING JOINED IN A CIRCLE FOR SLEEVE FACING

CROSSWAY BINDING STRETCHED ON TO WRONG SIDE OF SLEEVE

APPEARANCE OF FINISHED SLEEVE

DETAIL OF DECORATIVE BORDER

FACING AND DECORATING THE SLEEVES AND NECK

will differ. If the children are to receive a demonstration of this process, paper may again be used in the manner already shown.

THE ARRANGEMENT OF A CROSSWAY FACING AT THE CORNERS OF A SQUARE NECK

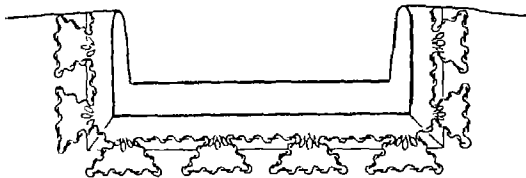
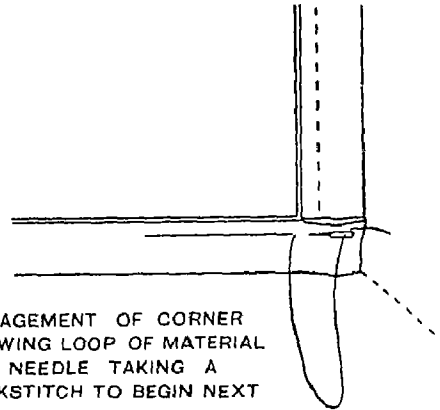
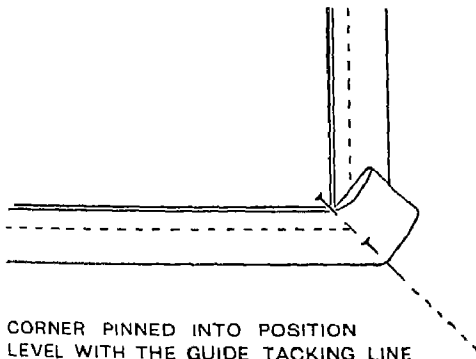
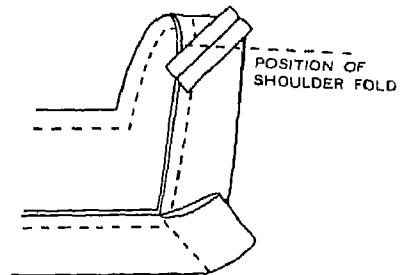
(Details and Demonstration of Lesson 14.)

PREPARATION

The preparation for this lesson will be exactly similar to that required for the previous two lessons This lesson is a continuation of those, and represents the final processes in fixing a crossway facing correctly at right-angled corners No further details will be given regarding the preparation, except the following suggestions for the teacher's requirements

Teacher's requirements.—In addition to the demonstration apparatus already referred to in lesson 12, the teacher will require a piece of poster paper 24 in. by 24 in, with a square hole of 12 in cut in the centre to represent the square neck. Strips cut in paper 3 in in width and of a sufficient length to cover the edges of the square are also required

INTRODUCTION

The children have already learned the method of finishing off the sleeves, but the neck facing will prove to be more difficult because of its corners, which have to be covered flat for the depth of the facing Show the finished tunic and allow the children to observe the well-set corners, and the join at the left shoulder.

FACING AND DECORATING A SQUARE NECK

PRESENTATION

Pin upon the blackboard the paper which represents the square neck, marking the lower part F (front) and the upper part B (back). Write also the letters R (right) at the left-hand side and L (left) at the right-hand side. Place at the centre of the L side a pin to represent the shoulder Point out the raw edge of the hole, and measure it round, using a fairly long length of wool or string for this purpose. Show the length by knotting the wool at the exact measurement. Ask the children to notice the difference in length between the measurement at the edge and the measurement 2 in below it Demonstrate, using the same length of wool, that the length increases as the depth at which the wool is placed widens Therefore, in fixing a facing to a square neck of this type, the strip used must fit, or lie flat upon the neck *below* the raw edge, at the required depth of the facing. In order to arrange this the following procedure must be adopted —

1 Begin to pin the facing strip at L (left shoulder) putting the first pin ¼ in. beyond the raw edge at the end of the strip Pin along ¼ in. below the edges, until the corner is nearly reached.

2. Fold the garment diagonally at the corner, and tack a guide line down the crease.

3. In order to produce a perfectly square corner, project the strip forward for its own *finished* width. Fold back again to allow the strip to lie flat (irrespective, however, of the ¼ in turning at the lower edge).

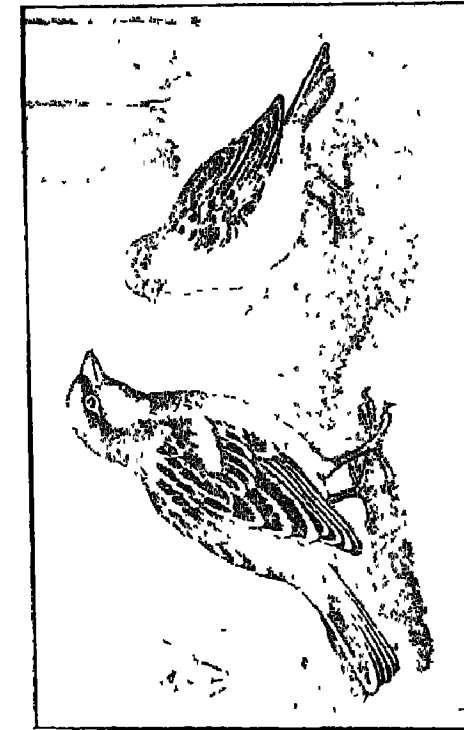
4. Put in the first pin round the corner, and continue to pin along the front of the garment When each corner has been fixed in this way the join at the shoulder may be completed by cutting the end of the strip parallel with the commencing end, leaving ¼ in. turning beyond the sewing point. Join by running, flatten out the join and commence to fix the strip to the neck by running the two together ¼ in. below the raw edges. When the corner is reached, it is important to note that the last stitch made before turning the corner must come exactly on the guide line, (the diagonal line running through the corner of the neck shape), and the first stitch made must start from this point The projecting fold of the stuff should not be sewn down in any way, but the needle must pass through it A facing may be attached to either the right side or the wrong side, according to the desire of the worker In this case, the first application of the strip is to the wrong side, allowing the facing to be finally secured upon the right side of the garment At this stage the children may be provided with pieces of coloured paper and strips, and told to work the process. This is an excellent plan, as it allows for practice in handling, and errors may be more readily corrected than if the first attempt is made upon a garment Paper is easily fixed, and it will be found that the children see more clearly what is required.

Turning the facing to the right side in preparation for the decorative stitchery.—Snip each corner diagonally as far as the stitchery Pull the strip through the neck square to the right side, and press it well at the edge to flatten the work Arrange the corners so that a folded edge is seen to lie exactly along the diagonal guide lines. Turn in ¼ in., which is the turning already allowed for, and tack it separately Fix the facing into position upon the garment, using small pins placed in an upright position through all the thicknesses of facing and garment. Fix first at the corners, secondly at the middle, front and back, lastly at the shoulders, and in between if necessary. Tack the facing down to the garment, using small (¼ in) tacking stitches. The facing is now ready to be pressed before being held in place with decorative stitchery.

APPLICATION

All corners of every shape and size are easily handled when a definite plan is made in the above manner. It is useless to drape corners with facings, no amount of patting and tacking will result in a good corner unless due care is taken to make it accurate.

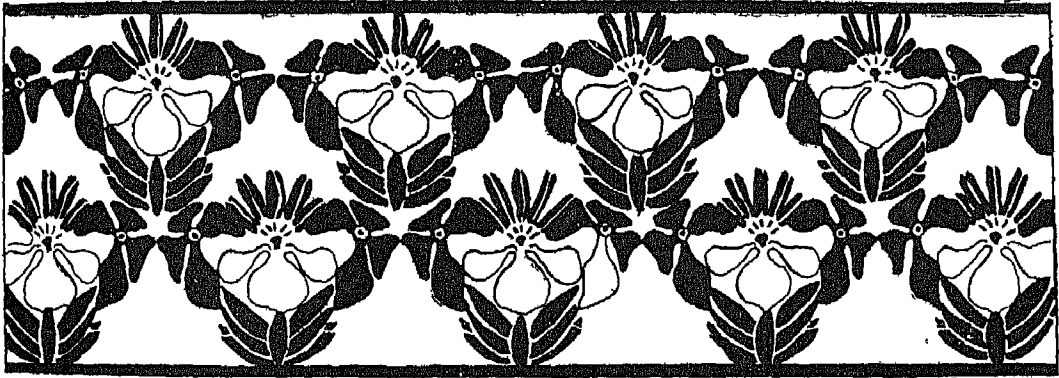
THIRD YEAR'S COURSE
OF
NATURE STUDY

(There are six Class Pictures (Nos 135–140 in the portfolio) associated with the Third Year's Course They are fully described in the Reference Book.)

Common British Birds—Male and Female

1 House Sparrow
2 Hedge Sparrow
3 Great Tit
4 Chaffinch

FOREWORD TO THIRD YEAR'S COURSE

THOUGH it has been found impossible, for lack of space, to include in this year's course any discussion of the function of the school garden, yet work in the garden should, it is felt, have an increasingly important place. Much of the subject matter for the third year has, therefore, been chosen on the assumption that the children are watching plants and animals in the school garden, and that individual interests in it have been established Thus there is the study of the way in which plants take hold of the soil, then of some non-flowering plants which help to prepare soil, then of some of the animal inhabitants, and finally simple enquiries into the properties of soil. It is suggested that, in addition, a prominent place shall be given to bird study, concentrated, to begin with, round the bird table and bird bath set up in the garden, and then extended more widely At the same time any interests already established should be kept up as opportunity offers, and in particular the study of life in water might be carried a little further.

I. THE WALLFLOWER PLANT

POINTS FOR THE TEACHER'S CONSIDERATION

BEFORE any study of the function of plant organs, or of special types, is undertaken, it would be well to focus the children's attention on the general external structure common to most plants, and to make certain that they have definite knowledge, by examining one common plant and describing its structure in concise terms

Show the class a mature plant which has roots, stems, leaves, flowers and fruits present, if possible If young plants are available as well, a more complete conception will be formed. The Wallflower is chosen for description here, but the Snapdragon, Foxglove, Broad Bean, annual Lupin and annual Larkspur, are equally suitable, and entail no sacrifice since

all are grown afresh each year in the garden.

The children have their knowledge of the seedlings and early stages of many plants, and their observations of hedge plants and some other climbing plants, as a background.

THE LESSON

Aim.—The study of a plant as a whole, and the way its parts grow.

Material.—One large well-developed plant showing all organs. A young plant Branches for the children to share.

Introduction.—Tell the children that you are going to revise together the chief characteristics of common plants by noticing all you can about the growth of the Wallflower Show the whole plant so that they can all see it clearly

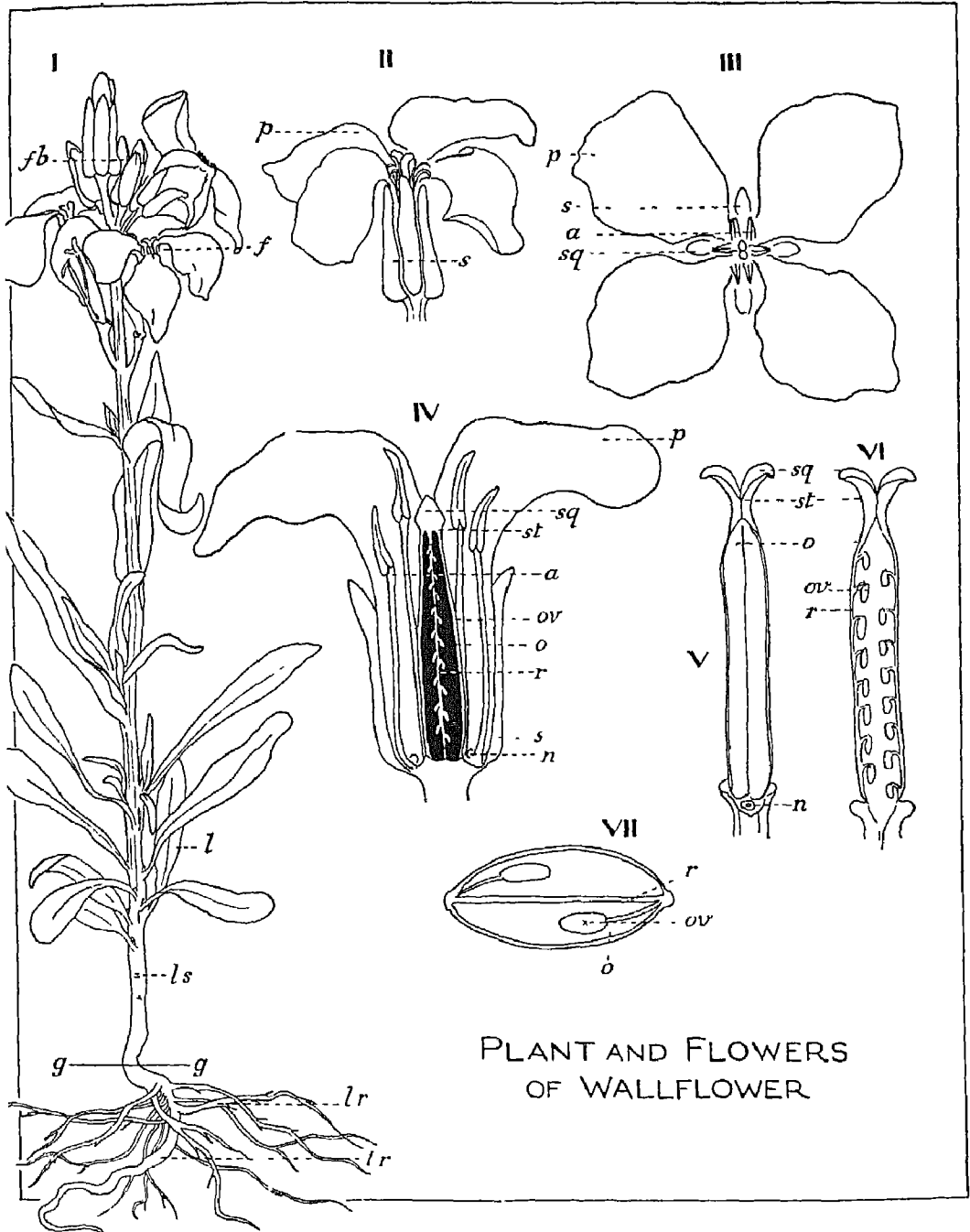
I. Let the children attempt to describe its general appearance. It is a *herbaceous* plant, that is, it consists mainly of soft green parts. But it is becoming woody, for its main stem and main root are quite hard, brown and woody in nature. Its original main stem can usually be distinguished, but it has branched into a bushy crown of several leafy stems almost equally important, each of which has given rise to an inflorescence. The lower part, both of the main and *lateral* stems, is bare, but if the children are allowed to look closely they will see ridge-like scars which indicate that the lower leaves have dropped off

Compare this condition with a young plant grown this year and note that the mature plant is from seed sown last summer. In the young plant, all the leaves grow immediately above the root, and no main stem can yet be distinguished Leaves growing in this way, straight from the ground, are called *radical* leaves, while those growing from a stem are called *cauline*. So the Wallflower has both in turn.

Give the children branches so that each can look at the arrangement of the leaves Note that they form a closely-set spiral with short internodes Count how many leaves there are to one turn of the spiral, i e before a second leaf occurs immediately over the lowest. The leaves are long and narrow, *simple*, with *smooth margins* There is no true leaf stalk, but the blade narrows down somewhat where it joins the stem. In the axils of some of the leaves, buds or small branches occur. Note that all the larger branches grow above the scars of old leaves

Each branch terminates in an inflorescence, which has the youngest flower growing at the top. This we call *indefinite*. An inflorescence of this type, with spirally-arranged stalked flowers, is called a *raceme* Notice that while the upper flowers are fully formed, or even still in bud, the lower ones have lost their petals, sepals and stamens and are in various stages of fruit formation In the unripe fruits the two stigmas can be very clearly distinguished, and a broad light brown scar forming a ring just below the ovary indicates where the remaining parts of the flower were attached. The ovary is lengthened to form a sort of pod If the ripe fruits are opened it will be seen that a thin plate separates this pod into two compartments, and that the seeds lie on each side of the plate

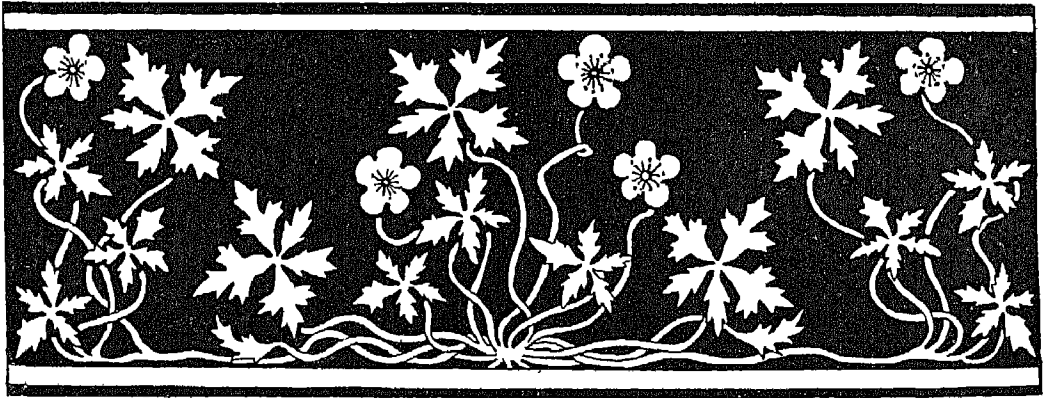
Now turn to the root In a well-grown plant this appears to consist entirely of delicate branched fibres holding a ball of earth which cannot be separated without breaking them. If it is gently felt with the fingers, these fibres will be found to be soft and delicate, but a firmer, stronger part can be detected. If an ill-grown plant is also available the fibrous roots will be short, neither so extensive nor so numerous, and then this central root, the original root, can be clearly seen Such a system, with a main root giving rise to lateral branches, is called a tap root (No root hairs can be found in an old plant Probably the finest roots, which would still bear them, have remained in the soil)

PLATE I

WALLFLOWER I Flowering plant: *f*, flowers, *f b*, flower bud, *l*, leaf, *l s*, leaf scar, *g-g*, ground level, *l r*, lateral roots, *t r*, tap root II Side view of flower *s*, sepals, *p*, petals III. Front view of flower showing cruciform arrangement of petals *a*, stamens, *sg*, stigmas IV Median vertical section of flower *sg*, stigma, *st*, style, *a*, stamens, *ov*, ovules, *o*, ovary, *n*, nectary, *r*, replum or partition V Pistil, *sg*, stigmas, *o*, ovary, *n*, position of nectary VI Vertical section of pistil, *sg*, stigmas, *o*, ovary, *ov*, ovules, *r*, replum VII. Transverse section of pistil *o*, ovary, *ov*, ovule, *r*, replum.

II. Recapitulate the parts found and make a list on the blackboard Then refer briefly to the function of each part as far as the children know it. The flowers, they know, attract insects and produce seeds. The stems bear the flowers away from the rest of the plant, into a position where they can be seen Remind them that the climbing plants of a hedge all seek a position where they can obtain light and air. These are both necessary to the leaves of a plant if it is to be healthy, so the stems bring the leaves into a position in which they can obtain them Refer to the way in which all the leaves of a Horse Chestnut, Beech or Sycamore are exposed to the light, and the turning of the leaf stalks in the garden Nasturtium so that the whole round surface is facing the light Refer also to the way in which plants grown in a window will turn to the light.

Ask what the roots do for a plant From their general knowledge the children will say that they take in water from the soil Tell them that they also fix the plant firmly in the soil, so that it cannot be blown over or fall of its own weight. Notice how firmly all the small roots hold on to the soil and refer to the difficulty of uprooting many weeds, e g Dandelion, Bindweed.

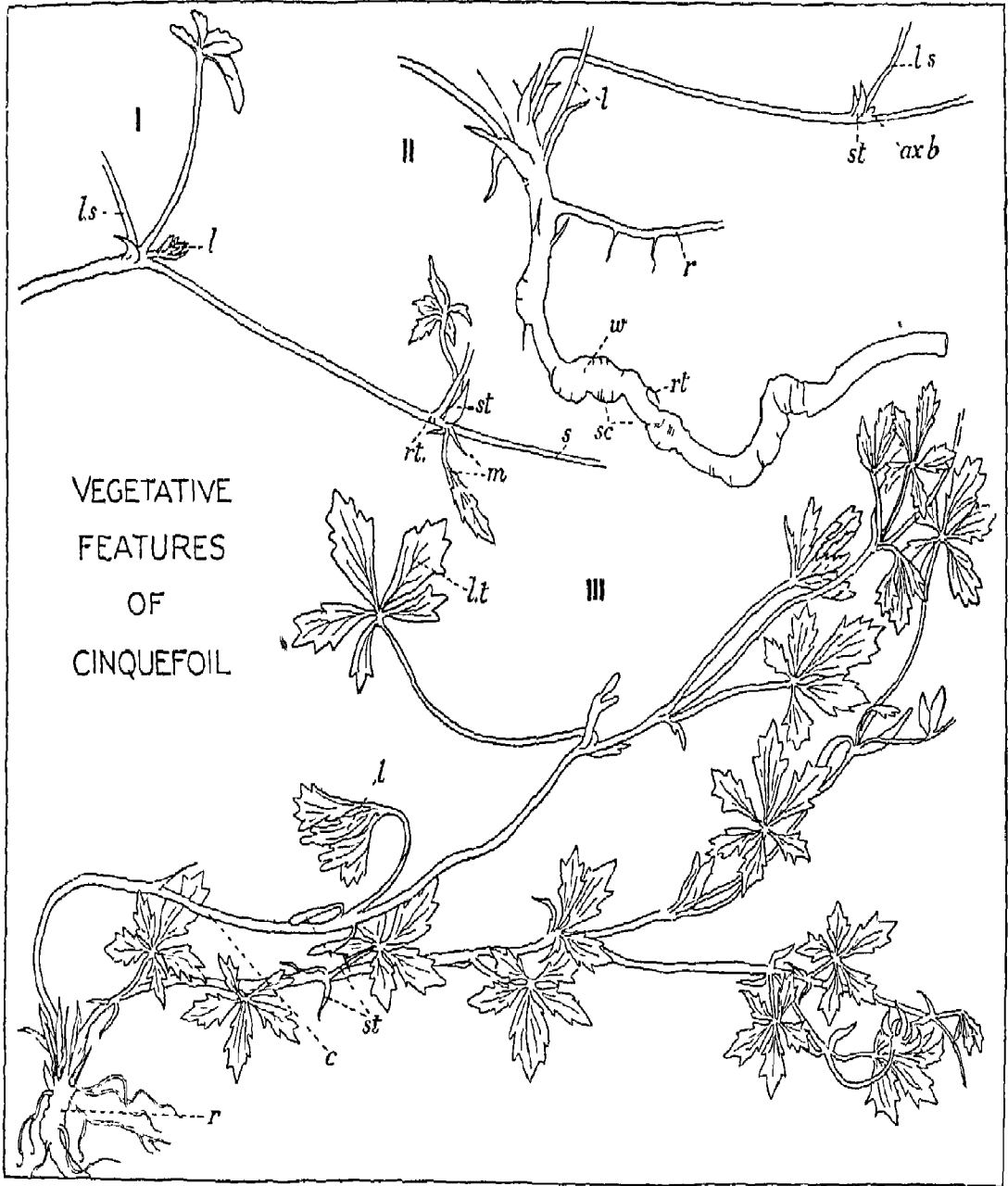
III. Let the children make a list in their notebooks of the parts of the Wallflower plant, with brief notes on their uses Tell them that they will make use of this knowledge when studying the forms which roots and stems take in other plants.

II. CINQUEFOIL AND VIOLET

THE LESSON

Aim—To examine these plants in relation to their habitat, with special reference to their method of propagation by surface creeping stems or *runners*.

Material.—Sufficient plants of Cinquefoil for the children to examine in groups, one or two Violet plants Both should have an old, thick, underground stem with a well-developed plant, and one or more runners, that is, stems running along the surface of the ground and rooting at intervals

Introduction.—Remind the children of the climbing plants of the hedge, and ask them what purpose the stems serve They bring

PLATE II

CINQUEFOIL I Runner *l s*, leaf stalk, *l*, leaves developed from axillary bud, *rt*, root—one of pair below terminal bud, *st*, stipules enclosing terminal bud, *m*, modified leaf (with stipules) in axil of which runner is formed, *s*, stem from axillary bud of 2nd modified leaf II Underground stem (*w*) *sc*, scars of leaves, *rt*, root, *r*, old runner, *l*, leaf stalk of dead leaf, *l s*, leaf stalk, *st*, stipules, *ax b*, axillary bud III Creeping stem (*c*) *r*, root, *l*, leaves, *l t*, leaflets, *st*, stipules

the leaves up to the light. They are too limp to be able to stand upright because they grow in length at the expense of rigid substance, but they are supported by the hedge. Now there are many plants which form long, weak stems, but instead of growing upwards to the light and finding support on other plants, these stems grow horizontally, creeping or trailing along the ground, only their leaves turning upward. They are very often found at the foot of hedges or on the edges of fields, among grasses or in gardens, insinuating themselves (that is, pushing without being noticed) amongst the plants which have been planted.

I. Let the children name any plants they can think of with this habit. Common ones are Field Convolvulus or Bindweed, Tormentil (in some districts), Wild Strawberry and the cultivated one, Ground Ivy, Creeping Buttercup (Any of these would serve equally well for examination.)

II. Show them the two plants chosen for study. Ask where they are found growing. Distribute the Cinquefoil plants.

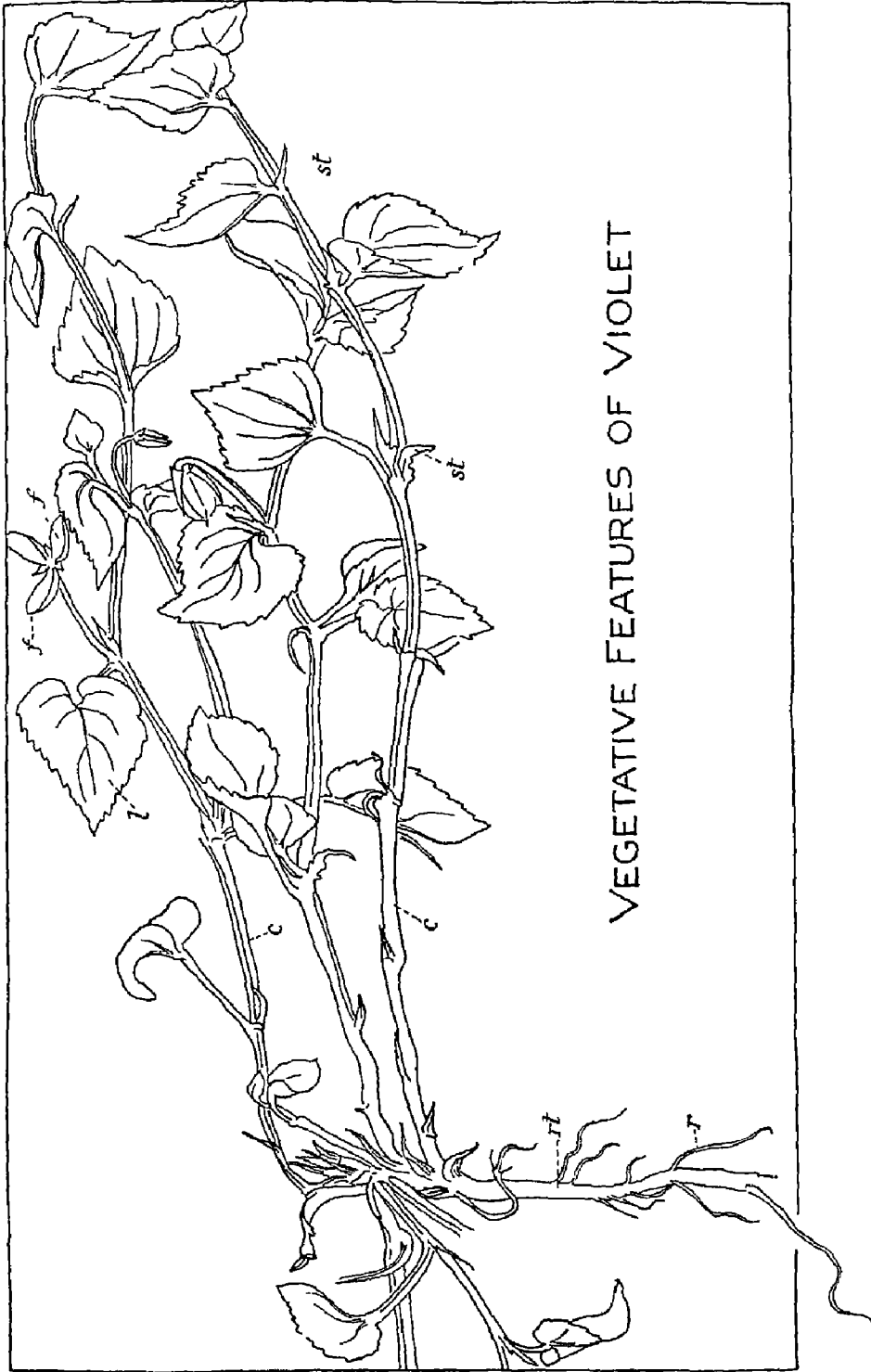
If possible, the children should first of all see the plants growing in the garden Let them decide first which part of the plant is the oldest and examine this. Notice that the oldest part has a long, woody structure which at first we should take to be the root. This grows obliquely to a depth of two or three inches, and usually breaks several inches away from the plant as it is dug up On closer examination, it will be seen to have scaly remains of leaves and leaf scars at close intervals, which show that it is really a root stem. Small fibrous roots grow from it Just at the soil level several broken leaf stalks form a sheath, from the centre of which grow the living foliage leaves and the bud.

Now notice that from the axils of these leaves arise as many as four or five lateral stems which lie along the ground Each stem may consist of several long internodes; often the number is two A single leaf may arise from each node, or there may be an axillary bud which also develops leaves. Very rarely roots will be found growing downwards from the node The terminal bud of each of these stems, after having formed one or two internodes, then grows upward, unfolds and forms a new plant, rooting on the underside. This in turn sends out axillary branches which form runners. The outer leaves developed from the terminal bud are often imperfectly developed, having a simpler leaf than is typical (Cinquefoil=5 leaf.) Each leaf base produces a pair of outgrowths or stipules.

III. Let the children make sketches of the plant to show:

(1) the oldest plant
(2) a runner
(3) a terminal bud forming a new plant.

IV. Compare the growth of the Cinquefoil with that of the Violet, placing this on the Nature Table so that it can be looked at.

V. Further work.—Look out for plants which have runners If it is feasible (i e. if they are unwanted weeds) suggest that the children shall try to dig up a whole plant of some kind, measure the area it occupies, the length of some of the runners, and count the number of plants they can dig up which are all attached together. They will then realise that this is a very efficient way of extending the area of a plant and obtaining a new food supply. In time, the older runners decay and separate new plants are established If it is possible, a whole lesson may be spent with the class on this work, preferably *before* the classroom lesson takes place.

VIOLET *rt*, stock or root stem, *r*, roots, *c*, creeping stem, *l* leaves, *f*, fruit, *st*, stipules

III. SNAKEROOT OR BISTORT

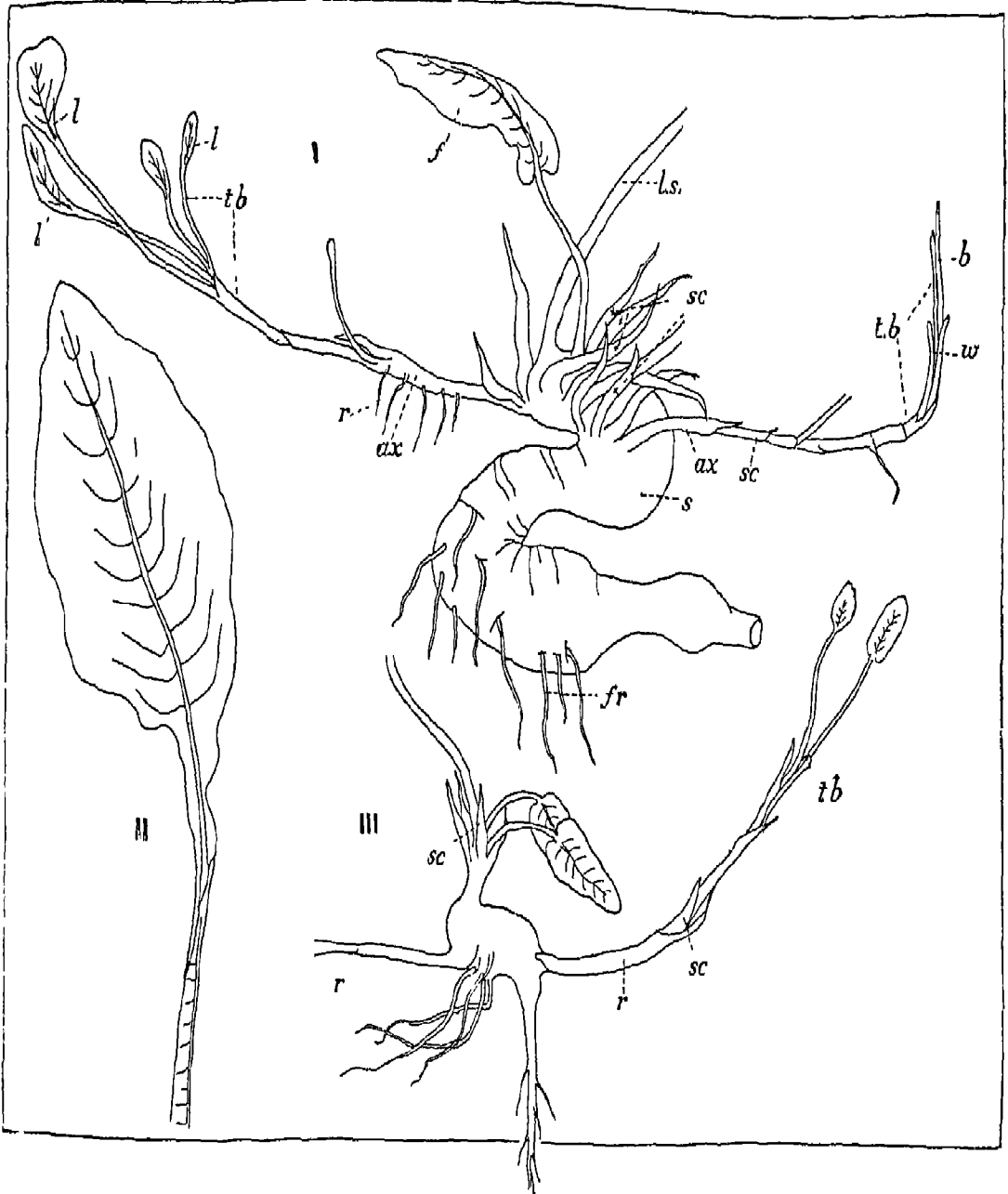
THE LESSON

Aim.—The study of a plant which is propagated by underground creeping stems.

Material.—This study may be taken in two parts, for in the summer the mass of large, dark green, ovate foliage in a damp meadow shows the wide area colonised by the plant, which tends to crowd out all competitors, while in the autumn, when the aerial parts have died down, one can by digging find the underground buds which keep the plant alive during the winter, and turn upward (as in the Cinquefoil and Violet) in the spring to form new plants. To illustrate its mode of growth it would be best for the teacher to extricate as much of a colony as possible. It can be spread out and fixed with U tacks on to a board, hung up so that the connecting stems can be clearly seen. The children might dig a little, in order to realise what a strong, tough holdfast the creeping stems make, and they might share rooted portions of the plant (or colony, for there is no true distinction here) showing parts of the creeping stems.

Introduction.—When making a study of Cinquefoil and other plants with runners, draw attention to the Snakeroot, especially to the large space it occupies and to the scarcity of other plants. Dig amongst the colony enough to show what a hold it has. Watch the flowering and fruit formation. It has handsome bright pink spikes of flowers. Any time during the autumn remind the children of this plant and tell them that it is now a good time to find out why it is able to spread and occupy the ground so successfully. Show the specially prepared plant

I. Ask the children what special features they notice It will be seen that the long-stalked, nearly oval leaves arise from leaf sheaths growing from a thick root stem or root stock. If the plant has been carefully washed it will be seen that the stem is thickly covered by scaly leaf bases, from the axils of which arise long, thin horizontal branches, pink or white, ensheathed for a great part of their length in small leaf scales, and terminating in a cluster of long leaf stalks bearing rudimentary blades, in varying stages of development, the larger ones yellow or beginning to turn green. A few small scattered roots may also be found

PLATE IV

BISTORT (SNAKEROOT) I Thick root stock *s*, root storing food, *fr*, fibrous roots, *sc*, scale leaves thickly enveloping root stock, *l s*, leaf stalks, *ax*, axillary branch, *r*, roots, *t b*, terminal bud turning up to form new plant, *l*, young foliage leaf, *b*, blade, *w*, white rudimentary leaf stalks, *f*, foliage leaf II Simple leaf on long stalk III Young plant showing root beginning to thicken *r*, runner, *sc*, scale leaves, *t b*, terminal bud

along these stems These stems grow underground Their terminal buds give rise to new plants.

Ask the children on what grounds these outgrowths should be called stems rather than roots. It is because they bear leaves and buds. They serve the purpose of roots to the plant, and give rise to fibrous roots.

Let the children examine several different specimens by interchanging them, and then ask what stages a young bud passes through in order to become a new plant. It will be noticed that it first of all curves upwards, then the leaf blades are pushed above the soil, grow, turn green, unfold, and eventually reach their full size which may be four or five inches. In the meantime, roots are forming on the underside of the stem Presently this part of the stem begins to thicken, looking rather like the corm of a crocus, and if various stages are examined, it will be seen that the root-stem becomes bent upon itself into an **S** shape, and twisted and irregular, thus suggesting its names of Bistort (=twice twisted) and Snakeroot.

II. Let the children make a sketch of a rooted portion, simplifying it to bring out the essential points (as in the diagrammatic sketch shown). These are the thickened, twisted, root stock bearing scale leaves, and the axillary branches (often a dozen from one plant) which will form new plants.

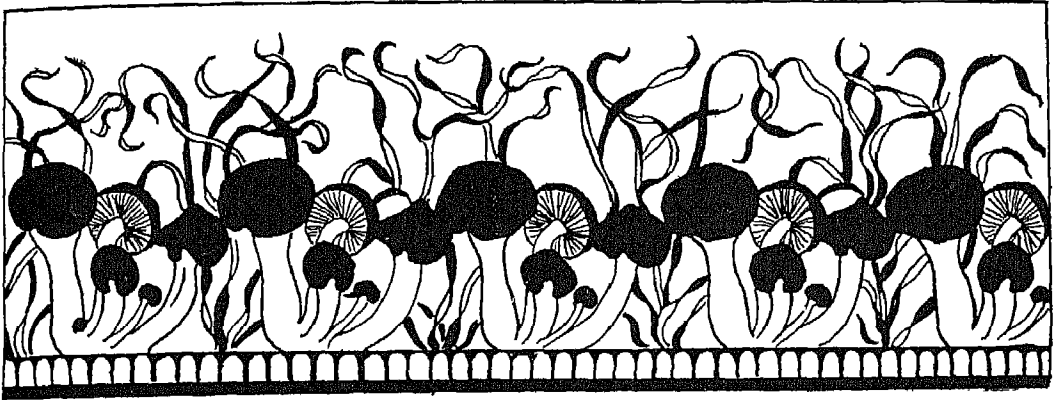
III. With suggestions from the class, frame a blackboard summary of the characteristics of the Snakeroot. It should incorporate the following observations.

(1) The Snakeroot grows in damp, usually sheltered situations
(2) It forms a colony and crowds out other plants by means of underground creeping stems
(3) These stems are white or pink; they obtain no light
(4) The stems grow from the axils of leaves of the older part of the plant, as in Cinquefoil.
(5) We know they are stems because they have small scale leaves and a terminal bud which forms a new plant
(6) The terminal bud keeps the plant alive through the winter, so this plant hibernates.
(7) When the plant is rooted, the stem begins to store food and becomes thick and twisted, giving it both its names.

IV. Further work.—Keep some of the stems bearing buds in water, covering one with a dark paper cone, keeping another in the light, one in a warm position and another in a colder place, and see whether you can induce them to develop. Later, plant them in soil and watch the process of rooting. Note that, like the Bindweed, this weed has the great advantage of being able to develop a new plant if a bud or piece of stem is broken off in digging and left behind in the soil Its thick root stock is very brittle and friable.

N B. If Snakeroot is not found in the neighbourhood, substitute a study of the Field Bindweed which is such a troublesome garden weed, or the Goutweed or Ground Elder which has a very similar habit to the Snakeroot and is commoner in southern gardens

The teacher will perhaps have noticed that the majority of creeping plants are propagated by terminal buds, which thus finish their growth, continuity being assured by axillary outgrowths whose terminal buds in turn form new plants. This is called *sympodial* branching, and is comparable to the branching of many trees, e g. Lime, Beech. Occasional instances are found in which the terminal bud continues the growth of the colony, while new plants are formed from axillary buds, e g. Ground Ivy. This is called *monopodial* branching, and is like that of the Ash, Sycamore and Horse Chestnut trees where the terminal winter buds continue the chief growth of each stem The same difference was observed between the Hyacinth and Daffodil bulbs.

IV. TOADSTOOLS

POINTS FOR THE TEACHER'S CONSIDERATION

PLANT study with children is apt to be confined to the flowering plants, which tends to give them a narrow view of plant life, whereas many of the lower, or non-flowering, plants present characteristics of great biological interest which are not beyond the understanding of children, though any attempt at detailed structural studies would be quite impossible An important reason for including some study of flowerless plants is that many of them are common and striking, and therefore sure to attract children's attention The patches of colour formed on roofs and old walls by lichens, or their hoary growths on the branches of trees ask for explanation The delicate mosses with their tiny capsules are attractive The moulds which attack our food are curious. But the most obvious and the most fascinating are the toadstools and puffballs These are members, with the moulds, of the great group of fungi which plays such an important part in our lives, because many of the smaller forms are responsible for devastating plant diseases which destroy our crops of fruit and grain.

The essential characteristic of all the non-flowering plants is that, instead of reproducing themselves by seeds, they bud off tiny masses of living matter. or protoplasm, called *spores* These may either begin to grow at once, upon reaching a suitable medium, or they may be provided with a hard, resistant wall which protects them during a resting stage in the same way as the seed coat protects the seed.

The fungi are further characterised by the absence of green colouring matter, so that they are unable to provide for themselves that part of their food supply which all green plants obtain from the carbon dioxide of the air combined with water. They make up for this deficiency by living upon the tissues of other plants or animals If they obtain their food from living organisms, they are termed *parasites*, if from dead organic matter, *saprophytes*. The saprophytic fungi are instrumental with the bacteria in causing those chemical changes called *putrefaction*, by which animal and plant bodies are broken down into simpler substances, which can again be made use of as food by plants and then by animals So

that fungi play their part in the food cycle upon which all life depends.

A fungus consists of a number of white threads, or *hyphae* (sing hypha) which develop from the spores, first as single threads, then branching repeatedly to form a tangled mass which penetrates the substance upon which it is living and sucks nourishment from it This mass of hyphae is called a *mycelium* At certain seasons some of the hyphae turn upward towards the light, and branch, often in a very complicated way. At the tips of these branches spores are formed The classification of the fungi depends chiefly upon the form these complex branches, called *sporophores* (spore-bearers) take. The majority of fungi rely upon the air for distributing their spores, so that the object of all these forms, varying so widely as the Toadstools, the great shelflike Polypores seen on trees, or the tiny pinheads seen on mouldy jam, seems to be to increase the surface which can bear spores, and therefore the numbers which can be produced.

Our study of flowerless plants will therefore be concerned with (1) the conditions under which they grow and (2) the method by which they produce a sufficiently large number of spores for their needs.

THE LESSON

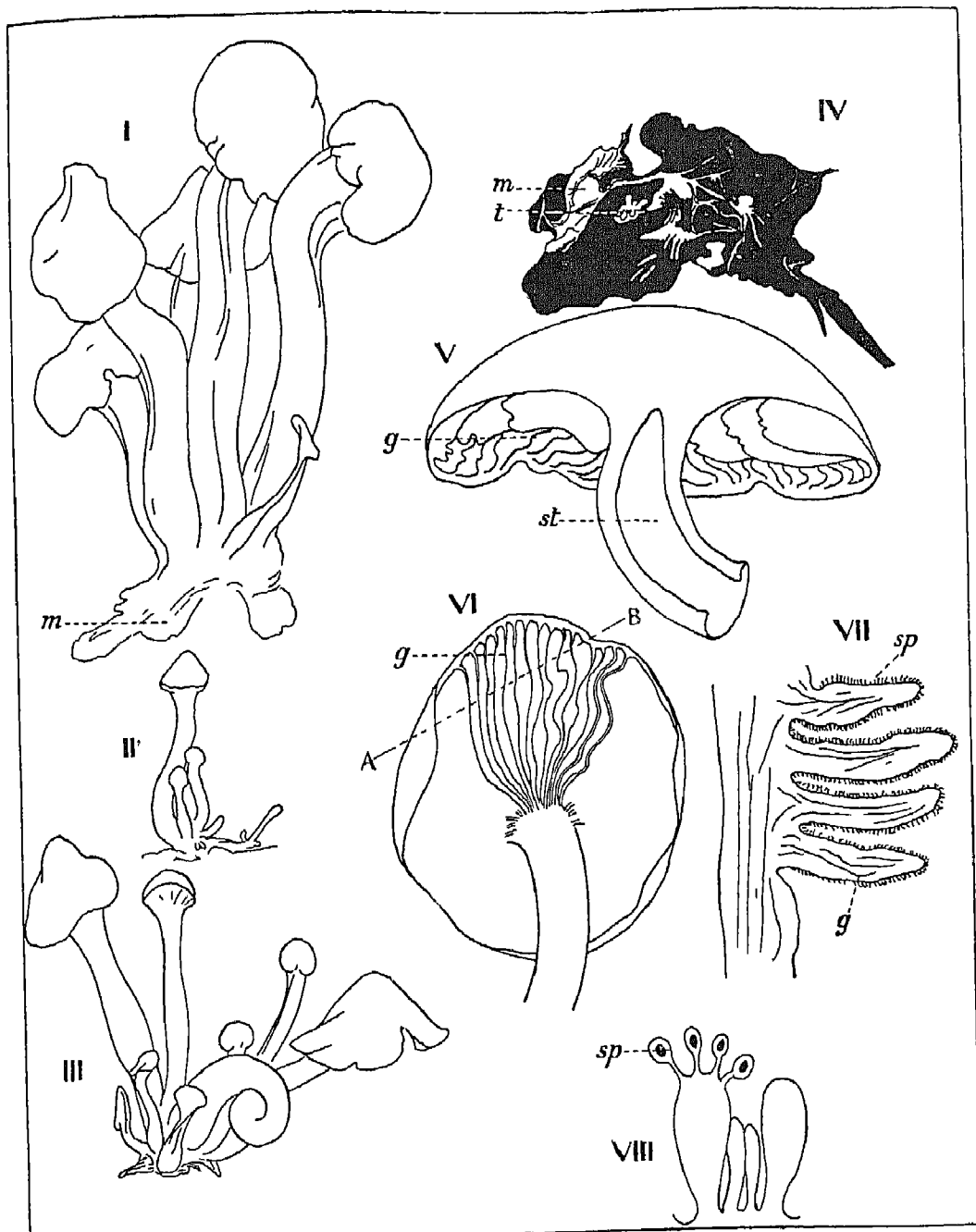
Aim.—To find out all we can about toadstools. Two periods should be devoted to this lesson.

Material.—As many kinds of toadstools as teacher and children can find, carefully arranged with natural material to look as if they were still growing, e g. amongst dead leaves or on pieces of bark. Earthenware plant-pot saucers are useful for this purpose.

A plentiful supply of some common toadstool if possible, though there is no reason why all should study the same forms. Where it has been possible to identify them, the toadstools should have clearly-printed labels giving their names. A common form is the Sulphur Tuft found in beech and other woods. Dead leaves matted together with white threads of branching mycelium. A piece of "mushroom spawn" if possible.

Introduction.—The children should be told some time before the lesson that they are going to study toadstools, so that they can have an opportunity of looking for them. They should be asked to notice where they grow and to examine them closely before picking them The teacher would then at the beginning of the lesson show the examples obtained, naming any she can and telling the children where they were found She would draw attention to the bark, dead leaves or other substance in which they are growing.

I. Pick out toadstools in different stages from small oval knobs with indistinct stalks to the fully expanded ones Let some of the children come and arrange them in order of development Ask what has happened to them. They have clearly grown, not only in size but they have developed Ask what parts can be distinguished A stalk, perhaps with white threads rooting it. A cap or head.

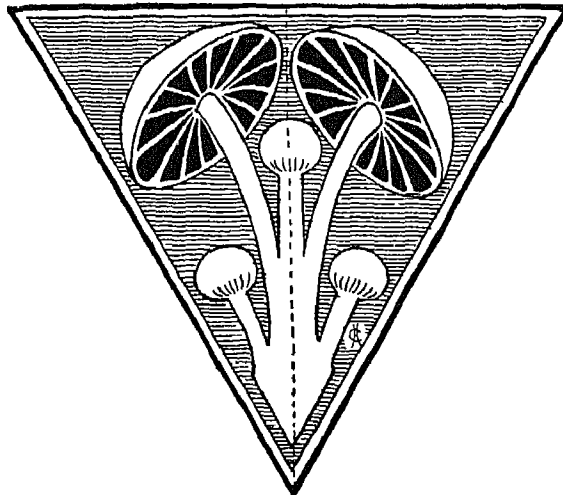
II. Distribute the Sulphur Tufts (or whatever form is available) The Sulphur Tufts are pale yellow to begin with, with a deep burnt ochre spot in the middle, which gradually spreads to the margin Let the children make drawings showing a cluster, and toadstools of different ages, if possible in colour. They will notice that the under side of the fully-expanded head is thrown into folds, radiating from the centre to the edge. These are olive green to dark brown in Sulphur Tufts, lying very close together, with shorter folds between the longer ones at the edge. They are called *gills* Cut the heads off several specimens of various kinds and place one of each on white paper and one on black Cover them with glass tumblers, or saucers, so that they will not be disturbed, or too much dried up. Others may, as an alternative, have their stalks pushed through

SULPHUR TUFTS I Clump of developed toadstools growing from mycelium (*m*) II Young cluster of toadstools III Clump showing stages in development of sulphur tuft IV Mycelium (*m*) on leaf, *t*, toadstools beginning to develop V Longitudinal section of toadstool showing arrangement of gills (*g*), *st*, stalk VI Under surface of toadstool showing gills (*g*) VII Section cut through head A–B *g*, gills, *sp*, spores VIII Detail of spores, tiny projections all over gill surface bear four spores each *sp*, spores

a slit in a piece of paper, so that the gills rest on the paper, which is placed over a tumbler with the stalk of the toadstool dipping into water not sufficiently high to touch the paper.

A day or two later, lift the toadstools carefully, and the pattern of the gills will be found delicately traced on the paper in fine powder The colour varies in different toadstools It is caused by the deposition of hundreds of minute spores which have fallen from the surface of the gills. The colour is used as an important point in identifying the toadstool. It may be white, pink, brown or black. In the Sulphur Tuft it is dark, chocolate brown. In the common Mushroom it is also very dark brown Tell the children how this fine powder or dust is composed and that each tiny particle is capable of growing into a new plant Give the name *spore*. They will now understand that a toadstool (or a mushroom) is a sort of fruit, since it bears the spores to form new plants But we do not call it a fruit, because it has not grown from a flower

In the meantime, in the first lesson, notice that the growing toadstools are attached in some cases by white threads to the ground. Give the children some dead leaves, which have been found matted together, and let them try to find where these threads grow They will find in many cases, on separating the leaves, a branching network of threads spreading all over them and connecting them together. They pass *into* the leaves as well, and take food from them. Call them *food-threads*, or give the name *hyphae*. Show a piece of "mushroom spawn" which is really a mass of hyphae (mycelium) holding soil. If this mass is planted, and moistened, it will continue its growth and form new mushrooms.

III. Further work.—These lessons will take place in the autumn, since toadstools are most numerous in late September and October, but by no means all "fruit" at this time, so that the class may be asked to look for toadstools and mushrooms at other times of the year. The Fly Agaric, a very poisonous scarlet form flecked with white, is found in pastures in the summer, for instance.

If there is a school garden, it might be possible to make a small hotbed of horse manure, covered with soil, break up the brick of mushroom spawn into two-inch knobs and plant it, to await developments.

V. PUFFBALLS

THE LESSON

Aim.—To see another method of spore dispersal amongst the fungi

Material.—Puffballs arranged so that they seem to be growing, in different stages These will be found usually in fairly open parts of a wood floor, growing on well trodden leaf mould and earth, or amongst sparse grass. They are common in beech and other woods They are recognised by their balloon shape, rounded but drawn in towards the base, and dusky ash-brown colour. The surface is finely granulated They may be 1 in to 2 in. high. Growing in the same situations Earthballs will also often be found. These are similar, but white and scaly. They do not open.

Introduction.—Remind the children of the Sulphur Tufts and let them give a brief recapitulation of the way they grow and produce spores Ask them the purpose of the spores Tell them that the toadstools belong to a very large group of plants, called fungi, which all obtain their food from the substance of either plants or animals (not from soil) They all have some means of producing spores, but vary very much in their method. Show them the bowl of puffballs as another type of fungus.

I. Notice how the puffballs grow, several in a cluster close together They are not all the same size, but in different stages of development. Notice that, like toadstools, they are attached to the ground, this time by thin, tough-looking cords They are, however, very easily knocked over and detached

The older ones will be seen to have a small hole at the top, with a narrow rim or collar. Hold up one of these and squeeze it gently. What appears to be fine brown smoke at once squirts out of the chimneylike opening. Children are usually much amused by this and like it repeated, or preferably to be allowed to squeeze the balls themselves It is difficult to exhaust the contents, which "smoke" so long as you squeeze Ask the children what they think the "smoke" might be By analogy with the fine spores which formed gill patterns in the toadstools they will probably suggest that these are spores. They are quite right When the

puffball is ripe its whole interior is filled with thousands of tiny spores. The least knock by a passing animal serves to send them out in clouds, giving them a chance of settling and germinating some distance away. Notice that they seem to form a fluffy mass. They are intermixed with short, fine threads which to some extent hold them together.

Show one of the oldest puffballs Here the hole has become so extensive that the tissue is torn across in several directions and the inside laid open, showing the great mass of spores it contains.

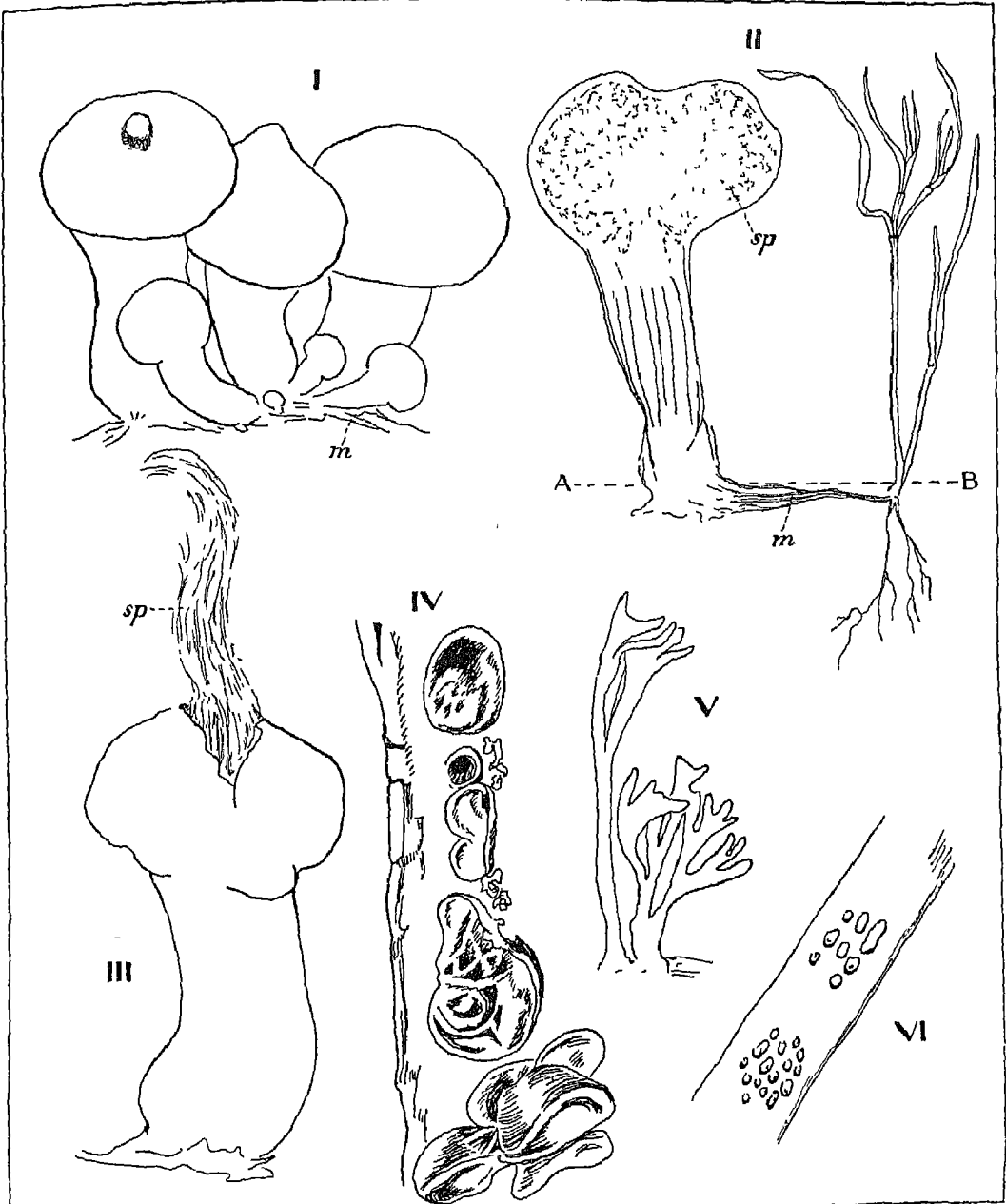
Now cut one of the immature puffballs lengthwise, and pass the halves round for observation. It will be seen that there is a compact outer wall, enclosing a firm but spongy mass This mass consists of a net-work of threads holding the spores in the meshes. As the puffball ripens the mesh breaks down and sets the spores free.

II. The children should have an opportunity of making sketches of the various stages, including the puffball "smoking" and the vertical section of the immature one, both carefully labelled As it is unlikely, however, that enough material can be obtained for all the class to use at once, it will be better to let them work in groups A good plan would be to show them in this lesson as many varieties of fungi as it has been possible to obtain in the neighbourhood, and then to devote a further period to letting small groups examine the various kinds, making notes on their habitat, manner of growth, and spore dispersal. Several commonly-occurring forms are briefly described below.

(1) *Coral Spot*—The name is descriptive. This fungus is found on bark, especially on twigs and small branches of hedge plants such as elm. Usually these are dead branches The mycelium penetrates the substance, but is too delicate to be seen without a microscope. In the autumn it forms numerous fruit bodies bearing spores, which penetrate the surface in round or oval patches about $\frac{1}{12}$ in. to $\frac{1}{8}$ in. across, often with a slight dint in the centre Very common, especially in damp woods (on clay) or in hedges with a wet ditch below.

(2) *Jew's Ear*—In much the same situations may be found, breaking through bark, irregular fleshy patches of tough reddish-brown or pink substance, with curious ridges and hollows which suggest the texture of a human ear. At first they may be only $\frac{1}{2}$ in. in extent, and quite smooth, later extending to patches 5 in or 6 in. in length. The folds serve to increase the spore-bearing surface. They look and feel like indiarubber.

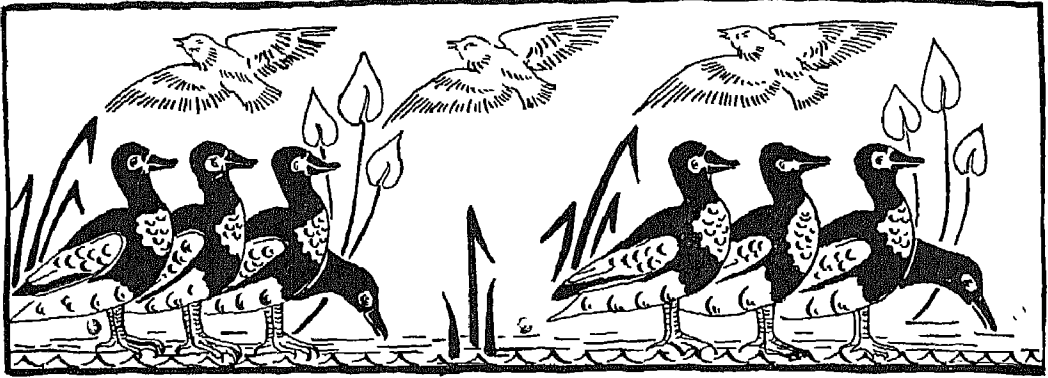
(3) *Candlesnuff.*—Again growing on bark or decaying stumps in damp woods, will be found small black tufts, at first straight and stiff, perhaps $\frac{1}{2}$ in. high, later growing to 1 in or 2 in. and branching slightly at the top two or three times, suggesting minute stag's horns and flattened in a similar way at the ends. As these ripen the black tips become covered with a white powder, gradually extending downwards to about half their length This is composed of numerous spores It is the small growths, before the spores are formed, which suggest candle wicks which have just been snuffed.

Many of the common fungi have no popular names by which they can be designated here, but it is valuable to collect any new forms which occur, in order to realise the wide range of form they may adopt and the great numbers and varieties which exist. The black spots which are often found on Sycamore and Maple leaves, the black powder in ears of wheat, and the rusty patches on barberry leaves, are all forms of fruit bodies distributing their spores, and in these cases, causing diseases which weaken or destroy living plants of economic importance.

PUFFBALLS I Cluster of Puffballs *m*, mycelium II. Vertical section of Puffball. *sp*, spores, *m*, mycelium, *A–B*, ground level III. Puffball "smoking" spores (*sp*)

IV JEW'S EAR.

V CANDLESNUFF.

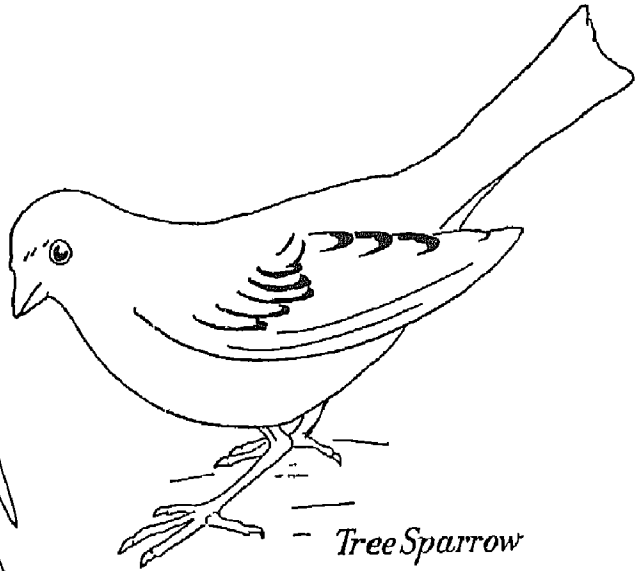
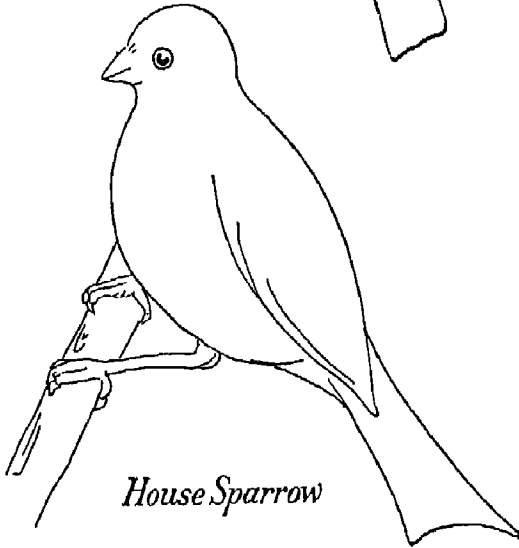
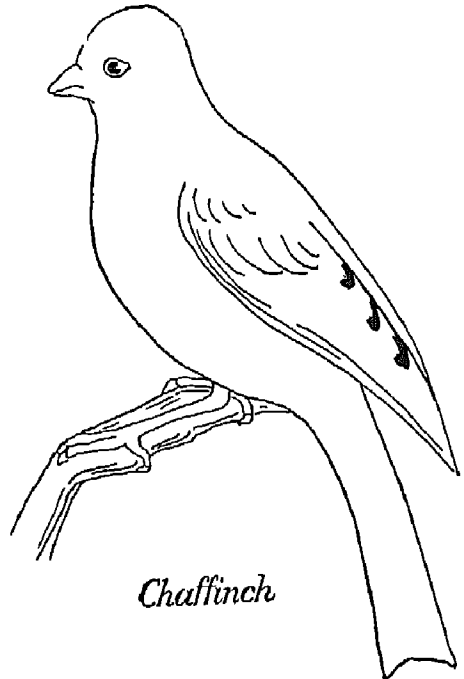
VI CORAL SPOT

VI. BIRD STUDY

POINTS FOR THE TEACHER'S CONSIDERATION

BIRDS, through their power of flight, have attained control of a much wider field than most other animals. This power of flight is the clue to the special characteristics, both in habits and structure, which distinguish birds from other vertebrate animals It has made accessible great varieties of food, and enabled the birds to search a wide area rapidly in quest of it. It has enabled them to choose safe, hidden nesting places, not easily reached by their enemies. It has led to the habit of migration, so that birds can leave their native locality when shortage of food and hard climatic conditions set in, spend the winter in a milder climate where the worms and insects which are their chief food supply are not driven into hiding or killed by cold, and return, probably to their racial home, for the breeding season.

Migration is not peculiar to birds, but it is a much more widely spread and systematic habit amongst them than amongst any other animals Besides the migrants which seek a new country in the winter, there are others whose migration is limited to a narrower range. They move inland from the sea-coast (gulls, many waterfowl), from northern to southern counties, or from woods, coppices and hedgerows to the open fields, as, for instance, do the chaffinches It is characteristic of many of the smaller birds to flock together in one sex during the winter, males in one flock and females in the other, and in some cases the flocks contain birds of different kinds (house sparrows and chaffinches, or starlings, rooks and jackdaws). They search the ploughed lands particularly for food.

In the spring, urged by the reproductive instinct, the flocks separate, return to their breeding haunts, and each male seeks out a territory and stakes a claim which he defends against all comers. Here he and his mate will be able to obtain food and build a nest Even from foreign shores it is generally noticed that the males arrive first. Authoritative observers of bird life are agreed that the meaning of a bird's song is first of all a challenge to other birds to dispute its territory, and later an announcement to the females in the vicinity that there is a settled home and maintenance assured to the selected mate. No doubt it has other emotional significance as well, and is the expression of the bird's exuberant well-being and desire for a mate.

PLATE VII

DRAWINGS TO BE TRACED FOR THE CHILDREN TO USE FOR COLOUR NOTES

(For actual size see text).

The variety of sites and materials chosen for nests is very great. Usually, birds make a selection from material near at hand, though sometimes they bring back straw, wool, twigs or feathers from a distance The weaving and moulding of the nest is accomplished by beak and feet, according to an ancestral pattern ingrained in the bird's mental heredity To some extent it is thought that imitation comes into play, as it has been found that there is a tendency for young males to mate with older females who have already had nest-building experience. It will often be noticed that the hen bird decides the actual position of the nest. I have seen a pair of House Martins dispute the exact spot under the eaves, and one settle the matter by firmly dabbing the first spot of mud on the wall. The other accepted the position and together they laid the foundations

The nests of birds which build in trees and hedges usually consist of an outer shell of fine interwoven twigs Such material is sometimes reinforced by mud, as in the case of the Thrush, perhaps packed in the spaces with bits of moss, lichens and leaves which may help to disguise it. The nest is then lined with softer materials, such as fine hay, hair, feathers, wool and thistledown, which serve as a bed for the eggs to lie on and help to retain the heat of both eggs and nestlings.

The young birds need constant feeding. A pair of Blue Tits are recorded to have worked from 2.30 a.m. to 8.30 p m. and averaged twenty-six visits an hour Swallows are said to feed their young once in three minutes (Morris, *British Birds*) It has been suggested that one advantage of a northern breeding place is the longer working day it allows for feeding the young. Soft, easily-digested, concentrated food is usually provided at first, either caterpillars, fat grubs and worms, or partially digested grain Pigeons have a special curdlike secretion known as "pigeon's milk"

Although birds are equipped with highly specialised instincts beautifully adapted to their needs, yet there seems to be some room in their lives for education, or learning by experience. This is one of the advantages of their sheltered home life. Those whose nests are not on the ground are hatched at a sufficiently immature stage to be able to profit by intensive individual methods of education. Young birds are both encouraged and taught by their parents In flight they are shown what to do, a little at a time, urged to try their wings, and sometimes even pushed off a safe ledge into space They seem to be guided in their choice of food. A hen with chickens can be seen to encourage them to peck at the food she has found for them.

Children are always interested in birds because of their bright, attractive ways, their song, their familiar presence in garden, hedge and field, or on ponds, and the mystery and excitement of finding their nests. It is therefore with these familiar aspects that the study should begin, leading later to some consideration of the characteristics of birds as a group. Begin by noticing the points by which the commonest birds (the Sparrows and Starlings) are recognised, then try to define the distinctive features of other birds, especially the character which strikes you first. Notice (*a*) peculiarities of movement, (*b*) colours displayed in flight which give the bird a different appearance from that you know when it is at rest, e g the white bars in the wings of a Chaffinch, the brick-red back of a Yellow-Hammer, the pale fawn feather at each edge of the tail in a Lark

Most of the work would be done informally, and it might be one of the main interests of the second and third year An occasional lesson is needed to arrange the results of observation and give guidance and direction The following subjects are suggested for such lessons.

(1) Resident winter birds—Hard-billed.
(2) Resident winter birds—Soft-billed.
(3) Setting up apparatus for encouraging birds
(4) Water birds
(5) Classification according to habit
(6) Structure in relation to habit.

RESIDENT WINTER BIRDS—HARD-BILLED

THE LESSON

Introduction.—A good plan, suggested by Mr. W Westell in his *Bird Studies*, is to give to the children on a postcard an outline of some common bird such as a House Sparrow, and let them fill in the colouring as exactly as possible from observation during the week (Mr. Westell suggests a Pigeon) They may be asked what they know of its colour, and then set out to verify their own impressions Many will say it is a little brown bird. Ask how they would distinguish it from a Robin, a Linnet, or any other small, brown birds that are common in the neighbourhood. Ask what other birds they know and how they would recognise them Get an account of some distinguishing feature of each, and then suggest that the children shall try to observe other details during the week

Referring to the House Sparrow again, ask if the cock is like the hen in colour, and whether young birds can be distinguished among the others. Give them two postcards with outlines, one for the colours of the cock and one for those of the hen Suggest that they shall look for the colouring of head and neck, breast, wings, back and tail

Find out what the children can tell you about the habits of sparrows and any other common birds With the children's help make a short list of birds that can be seen in the neighbourhood, and then give the children a set of questions to guide them in deciding how they can be recognised

Questions.—

(1) Where do you see the bird most? (Hedges? fields? woods? gardens?)
(2) Does it come out into the open, or keep in shelter?
(3) Is it tame or shy?
(4) Do you see it on the ground?
(5) Does it hop, walk or run?
(6) Is there anything by which you can recognise its flight?
(7) When does it get up and go to bed?
(8) Has it any striking colour?
(9) Does it sing, or has it any call notes?
(10) What does it feed on, and how?

If the questions are read through, and related to the list of birds just compiled, many children will have answers to suggest, and if these are discussed, the class can be asked to confirm the statements by further watching, and to be prepared to give their answers in a later lesson. Perhaps a fortnight might be allowed, and in the meantime, the possibility of setting up a bird table, bird bath, or other means of attracting birds, could be considered, and the apparatus could then be assembled and set up.

Collecting of observations made.—The children's notes on the colours of birds might be looked through before the actual lesson, so that the teacher would know how far they had been accurately noted and how far they needed correction or more detailed attention

Aim.—To obtain accurate descriptions of the appearance and habits of specified winter resident birds, e g. House Sparrow, Chaffinch, Yellow-Hammer.

Material.—The teacher should have, if possible, coloured pictures of the birds under discussion. A very good series of coloured postcards can be obtained from the Natural History Museum, South Kensington, for 2*d*. each If stuffed specimens are available, their legitimate use is to help in recognition, and to give an opportunity of close observation when the living bird has already been watched It is desirable to have a good reference book, to which teacher and children can turn for information on any doubtful point. The sooner the scientific habit is acquired, the sooner the children will attain confidence and serious interest Dr. Sanders' *Oxford Book of British Birds* is an excellent book at a moderate price.

I. Refer to the colour notes sent in (bird diagrams) and make any comments they require. Build up, with the children, the colouring of the House Sparrow. (The same diagram enlarged for the blackboard would be useful, or a tabulated summary could be made.) Then refer to the sheet of questions and let the children offer information.

Amongst other points, the following would emerge: the House Sparrow chatters or chirps loudly and continuously in the early morning and at dusk, that is when it gets up and when it goes to bed. It should be noted that the time varies with the time of year. It also chirps excitedly if it is alarmed or angry. It hops on both feet at once. Short flights from a roof to the ground are direct and straight, but in flying horizontally it rises and falls in short jerks or curves, spreading its wings and then shutting them forcibly as it sinks on the curve. This is characteristic of all the finches, of which the sparrow is one The Yellow-Hammer has a similar flight, but more sinuous and less jerky Compare this with the straight, strong flight of the Starling and Blackbird, or the sweeping curves of the Swallows, House Martins and Swifts (which, however, cannot be seen in the autumn as they have left us) The House Sparrow will eat almost anything,—crumbs, bits of fat, grain, and in the spring our newly set peas and grass seed. Notice its short, strong beak, very broad at the base, which enables it to crack seeds. Notice, too, how wary it is when feeding, although it is so tame Its head moves from side to side, it never stays long in one spot on the ground, and it seems to see every movement and hear every sound The male has a black bib; the female and immature birds have not. The young birds are lighter coloured.

II. Using these details as a basis, compare the House Sparrow with each of the other birds under observation. (Notes on some common birds are appended, as different selections may be made) Probably only about three birds can be dealt with in one period. If it is possible to enlarge the list, leave further discussion and any attempt to generalise till a later lesson. If the list is a short one, it may be possible to proceed further in this lesson

NOTES ON COMMON PERMANENT RESIDENTS—HARD-BILLED

The House Sparrow

Appearance.—The Male.—Length 6 to 6½ in. Plump body and short tail. Rounded head, short broad beak Four toes ending in claws, one turned backwards, as in most birds. Head dark slate grey, neck chestnut, breast grey, with a black patch over chin and throat. Back, tail and wings mingled light, dark and reddish brown, the tail being the most deeply coloured Some of the streaks nearly black Across the wings is an oblique whitish or pale fawn bar edged with black, very clear in flight (This distinguishes it from both male and female Tree Sparrows, which have *two* such wing bars, and a chestnut head They both have a black "bib," which is more extensive round the eyes than in the House Sparrow.)

The Female.—Smaller, 5½ to 6 in. Paler colouring, less red. No black patch on throat.

Young birds.—Like females, but paler, and plumage often not so smooth. Attain adult plumage after autumn moult. All have duller appearance in winter, owing to dusky fawn and grey tips of new feathers.

Habits.—Lives on roofs of houses, in streets and gardens Bold, cunning, alert, not easily daunted. Very pugnacious Food omnivorous, chiefly seeds and grain, but kills many flies and butterflies on the wing, and collects enormous numbers of caterpillars and wireworms to feed its young, that is, nearly all the summer A calculation was

made from observations of one pair, that they killed over 3,000 caterpillars and wire-worms in a week The general impression that sparrows are wholly injurious is incorrect, though they do take a large toll of grain and young seedlings They destroy crocuses and other flowers, probably in search of minute insects inside them, but possibly wantonly, as they seem to choose the yellow and brightest coloured flowers. Fond of bathing and dust baths

No song, but monotonous, loud chirping, often incessant for long periods morning and evening, and if excited They hop on the ground on both feet, or give little leaps. Flight undulating, except for short distances, or when rising or flying down to the ground. They start their flight with several quick jumps, with wings spread and feathers separate.

Breeding.—Three, sometimes four broods in a year. Nest under eaves, in chimneys and spouts, or in old or stolen nests of other birds. Eggs, five or six, greyish white, with dusky brown streaks and spots. Vary in size, about ¾ in. to nearly 1 in. Nest loosely and untidily made of straw, hay, wool, feathers, sometimes twigs. Cupshaped and variable, about 6 in across, sometimes much more. Both parents attend young until fledged, then the father looks after them while the mother prepares for the next brood All the broods remain in the neighbourhood of the nest While the mother is sitting, the father, and any young which have left the nest, roost somewhere near.

The Chaffinch

Appearance.—The Male.—Length, 6 to 6½ in or more Often slightly larger than House Sparrow. Distinguished by slate blue head and rosy pink breast, becoming soft dove grey farther back. In flight, white wing bar and two white marginal tail feathers are conspicuous. Forehead black Back chestnut, merging into olive. Dark wings and tail (olive, brown and lead colour) with a yellowish bar in the wings as well as the white markings already mentioned. The bird is very shapely and handsome, and the bright spring colouring appears exotic amongst our birds. It is often mistaken for the Bullfinch by casual observers, but is very much commoner Its colour, though bright, has not the deep rose-crimson of the breast, nor the glossy blue-black of tail and wings of the Bullfinch, which is seen in secluded woodlands and gardens rather than in the open and populous places frequented by the Chaffinch.

The Female.—Slightly smaller, paler in colouring Head greyish olive, not blue, breast pale fawn or greyish fawn, with just a tinge of red Two wing bars as in male, but less conspicuous.

Young birds.—As female, till after autumn moult All duller in the winter

Habits.—Seen about hedges and trees, in the open stubble and ploughed fields in the autumn and early winter, later in the winter they go to the stackyards in search of grain (wheat and oats particularly). They are a great help in clearing the soil of the tiny seeds of all kinds of weeds, on which they feed largely. They feed on the edges of the cornfields when the corn is ripe, and have been seen to shell each grain before swallowing it They will destroy early crops of onions, radishes and other vegetables, and flowers such as polyanthus On the other hand, besides the seeds of weeds, they destroy leaf-rolling caterpillars which infest fruit trees, and many other species, when feeding their young. They are very watchful, and utter a quick alarm note In the winter the flocks are generally either male or female, and they are probably to some extent migratory, passing from northern to southern counties It is possible that those which are seen in the north during the winter have come from other northern countries. (Linnaeus observed that flocks of females left Sweden) They are amongst the earliest

birds to sing, beginning early in February, and have a cheerful short phrase, ending in a quick run—"pick, pick, pick, pick, little de-ar." In the spring they have the habit of singing from one place, and very persistently, often fairly high up in a tree, but not like the Thrush, which stands clear on the highest twig that will support it The young males begin to sing at about the beginning of August, singing an incomplete song at first They move like sparrows, with short, quick hops, and their flight is similar.

Breeding.—Two broods are hatched, one about the middle of May, the second by the end of July The nest, completed about the end of April, is usually in small trees, such as fruit trees; sometimes in tall hedges It is placed 6 to 12 ft from the ground, sometimes higher It is a neat, compact cup, wedged in a fork of branches Fine materials are used, chosen from what is available in the neighbourhood, so that they vary to some extent The outside is of grasses, small stalks and roots, tightly interwoven with wool, spiders' webs, or other fine fibres. The upper edge is very neatly woven, the opening being 1½ to 1¼ in across. It is lined with hair, with a few feathers added sometimes A very characteristic feature, which makes it easy to identify but not to detect, is the outer covering of bits of lichen and moss, taken from the tree in which it is built and therefore disguising it very completely It has been found by different observers to take from six days to three weeks to construct, then the female sits for eleven or twelve days, and after the young birds are hatched, the male helps to feed them During the brooding time he guards the nest and will try to beguile intruders to follow him away from it by cries and flutterings Both behave in this way when the young are hatched. There are four or five eggs, rounded oval, about ⅝ in. long, dull bluish-green, clouded with dull red, slightly streaked and spotted, rather variable. When the young leave the nest they follow the parents and are fed for some days, and by the time they are fledged have begun to feed on grain.

Yellow-Hammer (Yellow Bunting. Yaffle).

Appearance.—The Male.—Length, 7 in. Bright yellow head, neck and throat lightly streaked with olive or reddish brown, and a little dusky black on the head The amount of yellow variable, more extensive and paler in older birds Back bright reddish brown, deepening to orange brown near tail. Wings deep reddish brown, olive and dusky, with grey and yellow underneath. Brightest in the spring. The rusty red of the back very conspicuous in flight, which is undulating but strong, and with longer, shallower curves than in sparrows and chaffinches.

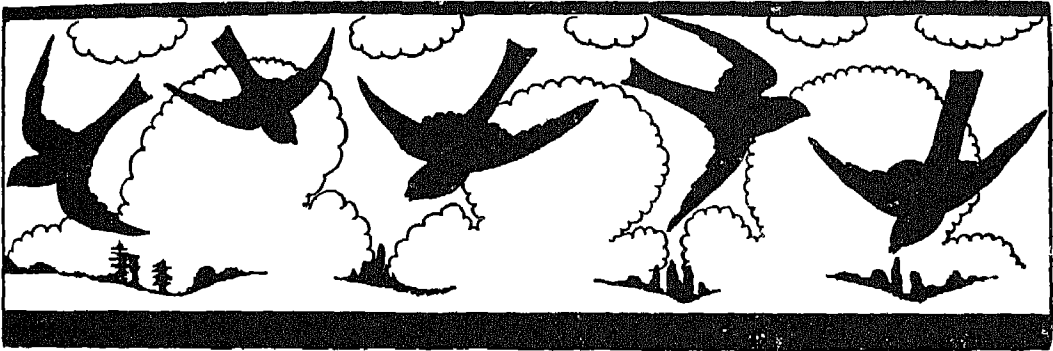
The Female.—Slightly smaller. Colour much less conspicuous, and duller. Very little yellow, confined to forehead and breast, and obscured by dark streaks and dull olive colouring. General impression dusky brown-olive, with dark streaks and lighter back and tail The reddish colour is seen on the back

Young birds.—Dull yellowish brown, streaked with dark brown, and yellowish grey streaks beneath. Assume yellow head after autumn moult

Habits.—Very characteristic of hedges in open cultivated country, and of gorse and broom on sandy commons Almost strictly grain feeders. Flock in the winter in families, parents remaining together, but associating with birds of other kinds Song a series of short, rapid notes with a long drawn out final note, familiarly given as, "A little bit of bread and no ch-ee-ee-se" Beginning as early as February they sing perched on the top of the hedge, with the tail bent downwards They are often to be seen sitting very still for a long time in this position when not singing.

Breeding.—Nest usually (though not invariably) low down in the hedge or on the

ground at the foot, sheltered by a bush or clump of grass. Moss, roots, small twigs, hair, are used. It is compact and well-made, but not nearly so neat and strong as that of the chaffinch. Note that nests on the ground or firmly supported are not so strongly and firmly made. Eggs three to five, pale purplish white with thin irregular zigzag streaks and blotches of dark reddish brown, as if a child had scribbled over it with a fine pen (sometimes called the Scribbling Lark or Scribbling Bird) Length $\frac{5}{6}$ in. The male feeds the female carefully during incubation, and takes his turn in sitting upon the eggs. The young begin to fly in the middle of June.

VII. WINTER RESIDENTS—SOFT-BILLED BIRDS

Introduction.—A week or so before the lesson, after observations on Sparrows, Chaffinches and Yellow-Hammers have been discussed, give the children a list of other birds to look out for specially These might include such birds as the Song Thrush, Blackbird, Starling and Redbreast, and (if they are known to frequent the neighbourhood) Mistle Thrush, Blue Tit and Great Tit. Suggest that similar observations to those already made shall be carried on. Similar notes and other records might be made.

I. The class lesson would proceed on the same lines as the last, the teacher filling out the children's observations after discussion has taken place, and giving further information which they can later try to verify

As thrushes, blackbirds or starlings have been watched, they will probably have been seen pulling worms out of the ground and eating them The Thrush may have been seen breaking snail shells by hammering them on a stone. A particular stone may be used frequently, so that the ground round it is littered with broken shells Notice the difference in shape between the beaks of these birds and those of the House Sparrow, Chaffinch or Yellow-Hammer. They are long, slender and sharply pointed The Blue Tit and Great Tit also have a thin, sharp beak with which they dig out insects or the contents of buds. The two types are distinguished as the *Soft-billed* and *Hard-billed*, those which feed chiefly on soft food (insects, worms, snails and fruit), and those which feed on grain, hard seeds and nuts. The bird's sharp narrow beak can stab or impale its victims, or pick them up like fine pincers, the broad, strong beak can be used like a pair

of nutcrackers (The notes at the end of this chapter will help the teacher to indicate further points for study.)

II. These autumn lessons on birds should stimulate an interest which will remain lively throughout the winter In the spring a further period might be taken, in which the birds' nesting activities might be described sufficiently to direct the children's attention to them. A bird chart might be kept throughout the winter, and the children would then notice when newcomers begin to arrive, when pairing begins, what birds begin to sing, how many can be heard singing in the same spot at the same time each day (the territory), and they would note the change to brighter plumage If two or three old nests can be collected and examined, the children can find out something of the structure and characteristics of some common ones. They may be told where to look and how to look for nests, and above all, to approach quietly so as not to frighten the birds, and *never* to touch them, as the parents can smell if a nest or eggs have been handled, and they will often desert the nest even if the young ones are hatched.

With regard to egg collecting, unless the teacher has reason to think that the children are taking eggs, it is probably best to deal with it indirectly, by enlisting the children's sympathy and friendliness towards birds The more children are interested in watching birds, the less they are likely to wish to interfere with them, but the collector's instinct is strong, and the question is sure to arise some time It calls for reasonable treatment and discussion. A ban on collecting can only do harm, as it will lead to secret raids, and any attempt to penalise a child by rousing public opinion against him may lead to a feeling of resentment, since there are many grown-up collectors who claim to be naturalists and pride themselves openly on their hauls.

The songs of birds can be gradually learnt only by patient and solitary listeners However, the teacher can do something to help children by telling them where certain birds are to be heard, by incidentally calling attention to the songs of common birds whenever they can be heard about the school, by suggesting that children who are interested shall try to imitate some of the songs with the help of bird whistles, and perhaps by encouraging some of them to give a "concert." There is probably no need to refer teachers to the interesting broadcasts on bird song (notably those of Professor Garstang), which have been given from time to time, with imitations and gramophone records.

NOTES ON COMMON PERMANENT RESIDENTS—SOFT-BILLED

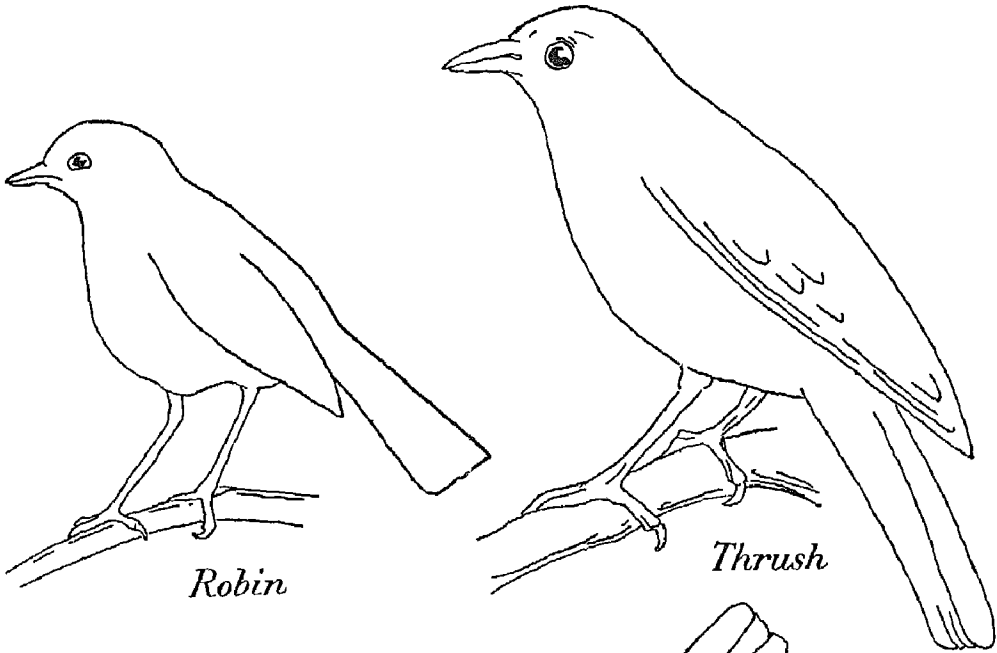
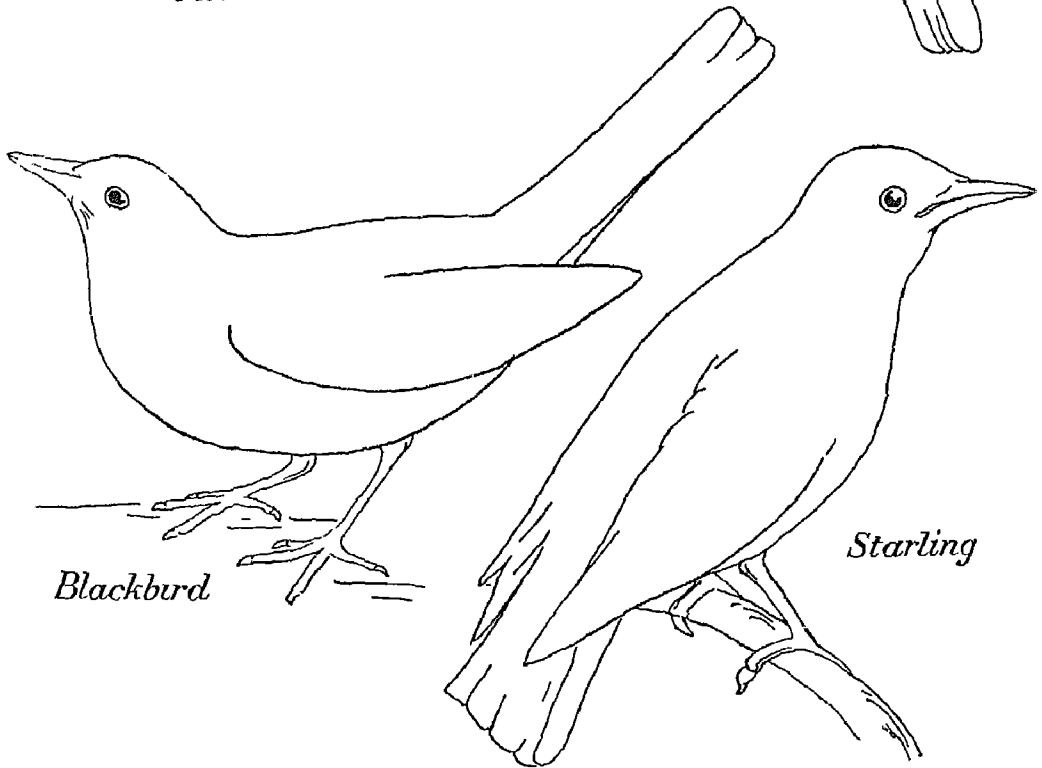
The Song Thrush

Appearance.—Male and **Female** alike. Length 8½ in Nut-brown or olive-brown, pale fawn to white breast spotted with dark brown, many of the spots forming long streaks, whereas in the Mistle Thrush they are short, nearly round, or arrow-head shaped.

Young.—Rather yellowish, upper parts flecked with buff

Habits.—Though many are winter residents, especially in towns, there is no doubt that a great many migrate, either farther south for the winter or to other breeding places. They sing almost the whole year round, and can often be heard singing joyously in January or February when there is a warm, bright spell Their rich, varied song, with its repetitions of short phrases and notes, needs no description. They will often sing from the top of a high tree

Food.—Worms and slugs, and snails which they break open by hammering them on stones Fruit occasionally They will patter all over a lawn, and the earthworms

PLATE VIII

DRAWINGS TO BE TRACED FOR THE CHILDREN TO USE FOR COLOUR NOTES

(For actual size see text).

rise in response to the vibration as they do to rain, and so are caught unawares and snapped up before they have time to hook themselves into their burrows They have a preference for cultivated fields and gardens, probably because worms are nearer the surface and frequently turned up by the plough or fork.

Breeding.—The nesting places chosen are variable, though most frequently in a bush or tree. The fairly compact nest of grass and fine twigs is lined with mud, kneaded into a hard cup and bound together by bits of straw, dung, or decaying wood. Eggs, four or five, blue with black spots, about 1 in. long Nest building begins very early The first eggs are usually laid in March, and two or three broods are reared in the summer.

The Mistle Thrush

This bird is larger than the Song Thrush, greyer, with more distinct, roundish spots on a lighter breast, and white underparts which show distinctly in flight Length, 11 in It feeds especially on berries, and is said to derive its name from its love of mistletoe berries, though it also feeds on worms and snails It is common in wilder country, especially in hilly country. It is said to have ousted the Song Thrush in localities where they have come into competition It is a vigorous, pugnacious bird, called the "Stormcock" from its habit of singing through stormy weather Like the Redwing and Fieldfare, many come to the south of England in the winter, returning farther north to breed.

Breeding.—They breed even earlier than the Song Thrushes. Mr T A Coward records instances of the birds being interrupted by falls of snow filling the nest, and going on again when the snow had melted. Eggs larger than those of the Song Thrush, about 1¼ in White, suffused with green or brown, and spotted with dark purplish grey or brown. Usually two broods

Young birds.—Yellowish on upper parts, with pale buff spots. Note that in many birds the young have spots more generally distributed than in the parents, and may have spots when the parents have none, e g. young Robins

The Blackbird

Appearance.—The Male.—Length, 10 in Glossy black plumage, occasionally blotched with white or nearly all white. Bright orange beak, long and daggerlike for impaling worms and soft insects, or acting as forceps in holding them.

The Female.—Dark brown, with a paler breast streaked with black, suggesting a thrush, but darker. Beak also brown.

Young birds.—Lighter brown, with some streaks. The beaks of young males are dark until the second year, when the adult plumage is nearly complete.

Habits.—Found in hedgerows and bushes chiefly, and in garden shrubberies, coming out into the open to feed on worms but retiring on the least alarm. Flight straight and vigorous, rising rapidly from the ground and often flying low for some distance Runs and hops on the ground, often flirting its long tail.

Food.—As the Song Thrush, to which it is nearly related

Song.—Its beautiful, deep song contains rich, pure notes and low gurgles and chuckles, of somewhat the same character as that of the Thrush, but lower, less varied, and without the many repetitions It lasts for a shorter season. It has in addition a low-pitched, loud chatter or rattle when alarmed, angry or excited, very startling to hear unexpectedly, and a warning of danger to the whole neighbourhood.

Breeding.—Nests in bushes, trees or hedges Nest made chiefly by the hen, of grass lined

with mud and then grass again, thus differing from the Thrush's nest Eggs, four to six, about 1 in long, pale greenish white, finely dusted with dull red.

The Fieldfare

Another member of the Thrush tribe, common in many parts of England in open fields, especially ploughed fields, in the winter months, when large flocks may be seen. They retreat farther north for the breeding season, usually about March. They are larger than the Mistle Thrush, and have a grey general colour, due to the slate-grey head and rump conspicuous in flight, together with the warm chestnut back Seen standing at close quarters they are more thrushlike, with rich brown throat and pale underparts streaked with black, and in the winter head and rump also. The beak is dark brown in the winter. They are larger than thrushes, about 10 in long Food is similar to that of other thrushes. They work very systematically up a field, or roost all together in trees They rise and fly together if approached, uttering loud, harsh alarm cries

The Redwing

This is another winter visitor of the Thrush tribe, closely resembling the Fieldfare in its habits, appearing and feeding in the same places. It is distinguished from the Thrush by the tawny red colour of the underwing, and sides of the body, showing especially in flight, and by the long narrow streaks which take the place of spots. In hard frosts it feeds on berries

The Starling

Appearance.—Length, 8½ in. Colours different in summer and winter Male and female alike, but female rather duller. Summer plumage, glossy, metallic purple, blue and green in sunshine, looking duller and blacker on a dull day. Beak lemon-yellow In winter, pale tips to the feathers give it a spotted appearance, much lighter and with the metallic feathers hidden. These tips gradually wear away, and by January or February it is beginning to assume its dark, glossy raiment Legs dull brown.

Habits.—Gregarious birds, collecting into large flocks as soon as the nesting season is over, going to a common roosting place at nights (like Rooks, to which they are distantly related) and searching the fields and gardens by day Many are permanent residents, but others are birds of passage, or summer or winter residents only.

Song.—Very wide range, rich whistling, chuckling and bubbling notes, but capable of imitating the songs of most other birds and any noise that attracts them.

Breeding.—They nest in holes almost anywhere—chimney pots, caves, haystacks, ruined walls—making a loose, untidy nest of straw and feathers Eggs, five to seven, about 1 in. long, pale blue, laid in April A second brood is reared

The Blue Titmouse, Blue Tit or Tomtit

Appearance.—Male and female almost identical, but female slightly smaller and duller Length, 4½ in. Distinguished by deep blue head and white cheeks, with a black line passing across the eye and encircling the cheeks Back yellowish green. Sides of neck and breast yellow. Tail blue, with a white bar conspicuous in flight. A short, plump body, with slender, bluish grey legs, and short, sharp beak used as fine pincers for picking minute insects out of crevices. Distinguished from the Great Tit at a glance by its size (it is more than an inch smaller) and blue head.

Young birds.—Much yellower.

Habits.—Lives chiefly amongst trees, picking out tiny insects from bark and leaves,

small moths and flies flying about, or small caterpillars swinging from the branches on threads, aphides and leaf-pests of all kinds It destroys numerous buds in the spring, possibly in search of insects, though this is unproven. It is often seen swinging on the fragile twigs of birch or elm trees and fruit trees, and will hang upside down or in any position Quick, jerky movements which explain the name of "titmouse." Takes short, rapid flights from tree to tree, with quickly-beating wings.

Song.—A rapidly repeated, tinkling note.

Breeding.—Selects a hole in a tree for its nest, and fills it up with moss to the required depth if it is too deep. Returns to the same hole year after year, and takes readily to a nesting box Nest a mossy cup, lined with wool, hair or feathers, contains from seven to twelve eggs (possibly sometimes laid by more than one hen). These are about ½ in. long, white with dull red spots. The bird will make a hissing noise if anyone looks into the nest when she is sitting, and bite if a finger is inserted.

The Great Tit

Appearance.—Length 5½ in Similar colouring to Blue Tit but much less blue, and with conspicuous black head, neck and bib Back yellow to olive green, passing into bluish grey Tail and wings blue grey, with conspicuous white wing bar. Breast and underparts yellow. Much duller after the autumn moult, assuming bright spring colours as tips of feathers wear away Male and female alike

Young birds.—Duller.

Habits.—Remain with us all the year. Flock with other kinds during the winter, searching the trees, fallen leaves and mast for food. Come to the ground much more than the Blue Tits Daring and pugnacious, using the sharp beak to attack birds as well as insects, and said sometimes to kill a smaller bird by driving its beak into the skull.

Food.—All kinds of small insects, especially larvae and leaf-burrowing insects such as spangle galls on leaves, and even the marble galls of the oak, which, Mr. Coward states, are often pecked to the central chamber to extract the larva inside. Nuts and seeds are also eaten. Both tits will eat hive bees as they emerge on the threshold in the spring.

Song.—Known as the "saw-sharpener," the two quickly repeated up-and-down notes sound very much like a tool being sharpened on a stone, or a wire fence being tweaked by someone swinging it Mr Coward gives it as "pee-lar, pee-lar" It goes on insistently for long periods, sometimes with another quickly repeated final note or varied by pauses which make little phrases.

Breeding.—Similar to the Blue Tit, in holes in trees, with a large clutch of white red-spotted eggs. These are larger than those of the Blue Tit, about ¾ in long It has the same habit of hissing and biting.

The Robin or Redbreast

Appearance.—**Male** and **Female** alike Length, 5¾ in A neat, trim little bird, standing very upright on rather long legs The scarlet breast is the adult's chief distinguishing feature, merging into light fawn and dove grey, with a rim of blue grey separating back from breast. Bright black eyes, slender pointed beak.

Young birds.—For some time speckled, with much the colouring of a thrush. Gradually lose the speckled appearance, becoming more like adult, attaining mature plumage after autumn moult.

Habits.—Found especially in cultivated places, hedges and gardens, and readily

come to a bird table or hop round where digging is going on Remain with us summer and winter, and are astonishingly friendly and tame.

Food.—Insects chiefly, and small worms, but soft berries (haws) and even seeds are eaten

Song.—Begin to sing in the second year, at first an incomplete song, then the characteristic sweet, high and varied tune. They give also a series of quick notes at times like the opening and closing of scissors, and a variety of short alarm notes and call notes.

Breeding.—Build in ivy, old walls, bushes, or in any kind of receptacle that offers a hole (they have been recorded in old cans, discarded hats, pillar boxes) Eggs, four to six, about ¾ in long, pale greenish-blue, finely speckled with dusky green or brown. The young clamour for food incessantly, and are constantly fed by both parents, who bring four or five caterpillars at once Chiefly fed on soft larvae Frequently two broods in the year.

VIII. THE MAKING OF APPARATUS FOR BIRD STUDY

Aim.—To increase the children's interest and sympathy for birds by planning ways of feeding them in order to encourage them to come to the school playground or garden.

Children's aim.—To arrange a bird table and bath, and to look after them.

Introduction.—Suggest to the children that there would be more opportunities of studying birds if they could be encouraged to come to the school playground, and ask what could be done. Probably the children will suggest putting out crumbs Ask what other food birds like. Tell them that during the winter, when grubs and other food are scarce, birds need heat-giving foods, and especially fat. They also need water which they often find difficult to obtain, especially in frosty weather. They not only need water to drink, but many birds appreciate it for a bath. It is best to put the food on a tray so that the birds know where to expect it, and so as to keep it tidily together.

I. Decide where the bird table or tray could be put. The best place is in an open part of the garden, so that the birds can easily see if cats are about It is a great advantage if a *sanctuary* can be made by surrounding the garden with a high wire fence, with a sloping, in-turned ledge about a foot wide at the top The ledge makes it almost impossible for cats to climb over. The enclosure needs to be sufficiently wide for the birds not to feel trapped, or they will not come It should be in a place which the children can easily watch Failing this plan, a tray may be secured by staples to a wall, or be hung from a window

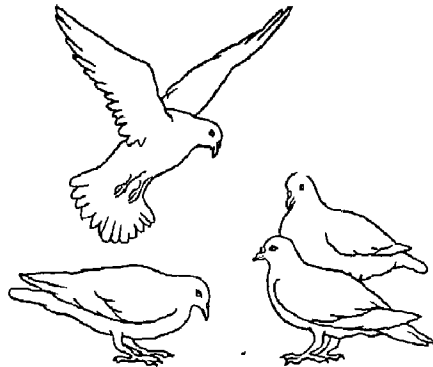
It is usually said that a bird table should be so high that cats cannot spring on to it, and a height of 4 ft. 6 in. is suggested This height, however, is open to some objections It is doubtful whether cats would be deterred by this height; it is too high for children to see, and birds which feed on the ground often seem reluctant to use so high a table Such birds are very wary when feeding, and provided there is no cover for an enemy, they would usually see one approaching A height of 2 ft 6 in. is convenient for children to watch, and many birds seem to prefer something still

lower. On the other hand, some of the shyer and smaller birds will come more readily to food hung from the branch of a tree, from a post or a window frame. A convenient device is to screw on to a window ledge half a child's wooden hoop from which strings of shelled peanuts, a half coconut, or a piece of fat on a string can be hung. Bunches of berries can also be suspended.

In order to see which food is chosen by different birds, it is a good plan to use very small plant-pot saucers or other small shallow vessels on the bird tray, and fill them with different kinds of seed Mixed bird seed may be used, also wheat, maize, split peas, hemp, peanuts and sunflower seed Indeed it is good to experiment with several different kinds Crumbs can also be put out, but they should be broken quite small A lump of suet or fat bacon is appreciated.

II. Discuss how to obtain what is needed. It may be possible for some children to make a tray out of a box lid with strip wood nailed on for the edge, painting it green or staining it brown. The birds will not use it till the smell has disappeared. Possibly children in a higher class would make a bird tray. A firm pedestal is necessary. An old tree trunk sawn across makes a good one

The bird bath should be a shallow vessel, either on the ground or raised a few inches, with a conveniently thick rim for the birds to perch easily. It should hold about two to three inches of water A large earthenware plant-pot saucer or bulb bowl is quite good for the purpose. It is better if the receptacle slopes gradually to the middle. If there is a small artificial pond in the garden, birds will often use this for drinking.

If the bird-feeding apparatus is already in existence, it may need overhauling, cleaning and re-painting; the bath and small food vessels may need washing. Decide what food shall be provided, and accept any offers. In this period it may be possible to let the children start preparations, or the work may be planned, and carried out between lessons If possible, let all the children have a hand in it Extra strings of peanuts or coconuts can be hung in other parts of the premises. Arrange a rota of children to look after the apparatus, and let them report officially at the beginning of each subsequent Nature Study period, if there is anything to relate. Other children's observations could then be taken.

IX. WATER BIRDS

(First Period)

Aim.—If a pond or artificial sheet of water is available, where ducks and other water birds can be seen, they offer an excellent opportunity for the study of movement on a larger scale, especially in relation to obtaining food

Introduction.—The teacher, having made a preliminary visit, would, before setting out, tell the children briefly what to look for, so that their observations might have a definite purpose. They might be given slips of questions The points given them for observation would be

(1) To recognise whatever birds are to be seen.
(2) To notice as exactly as possible what movements they make when they are swimming, and their position in the water.
(3) To notice how they enter and leave the water, whether walking or flying
(4) To watch them feeding
(5) To watch their flight if possible, noticing what movements are made with the wings and tail in straight flight, in turning, in rising and a-lighting

For convenience of supervision the children may be arranged in small groups which are to keep together under leaders This plan enables the teacher to get round to each group in turn to draw their attention to any points she wants them to notice On arrival at the pond, the children would use their slips of questions as a general guide, but would be quite free to watch whatever happened They might attempt to sketch the position of a Duck or Sea Gull on the water, or a Duck diving for food. They should notice the webbed feet, and the much slighter web, but very long toes, of the Moorhen (Water Hen) if it can be seen on the bank.

(Second Period)

Aim.—To collect and discuss the observations made at the pond

Introduction.—State this aim. Make a list of the birds seen (if numerous) and divide these into fresh-water birds and sea birds. Tell the children that gulls are only literally flying visitors inland, but many kinds of ducks spend the summer along sandy shores and salt marshes and go inland, often much farther south, for the winter In many parks certain water birds are introduced, but it often happens that migrating wild birds will join them, so that it is best to find out from the park keeper which are resident birds and which are passing or winter visitors. The Common Wild Duck (Mallard) will often join the tame ones, so will Teal (the smallest British duck) and Widgeon (very like it, but larger), while Tufted Ducks, Pintails, Sheldrakes and Barnacle Geese are often introduced, their wings being clipped to prevent them from flying away. Moorhens and Dabchicks (Little Grebe) may take up their permanent abode in the park. The Common Gull, and more frequently the Blackheaded Gull (which, however, has only a black spot near the eye in the winter), spend part of the winter, especially in a severe season, both on ornamental lakes and on ploughed fields, sometimes eighty miles from the sea.

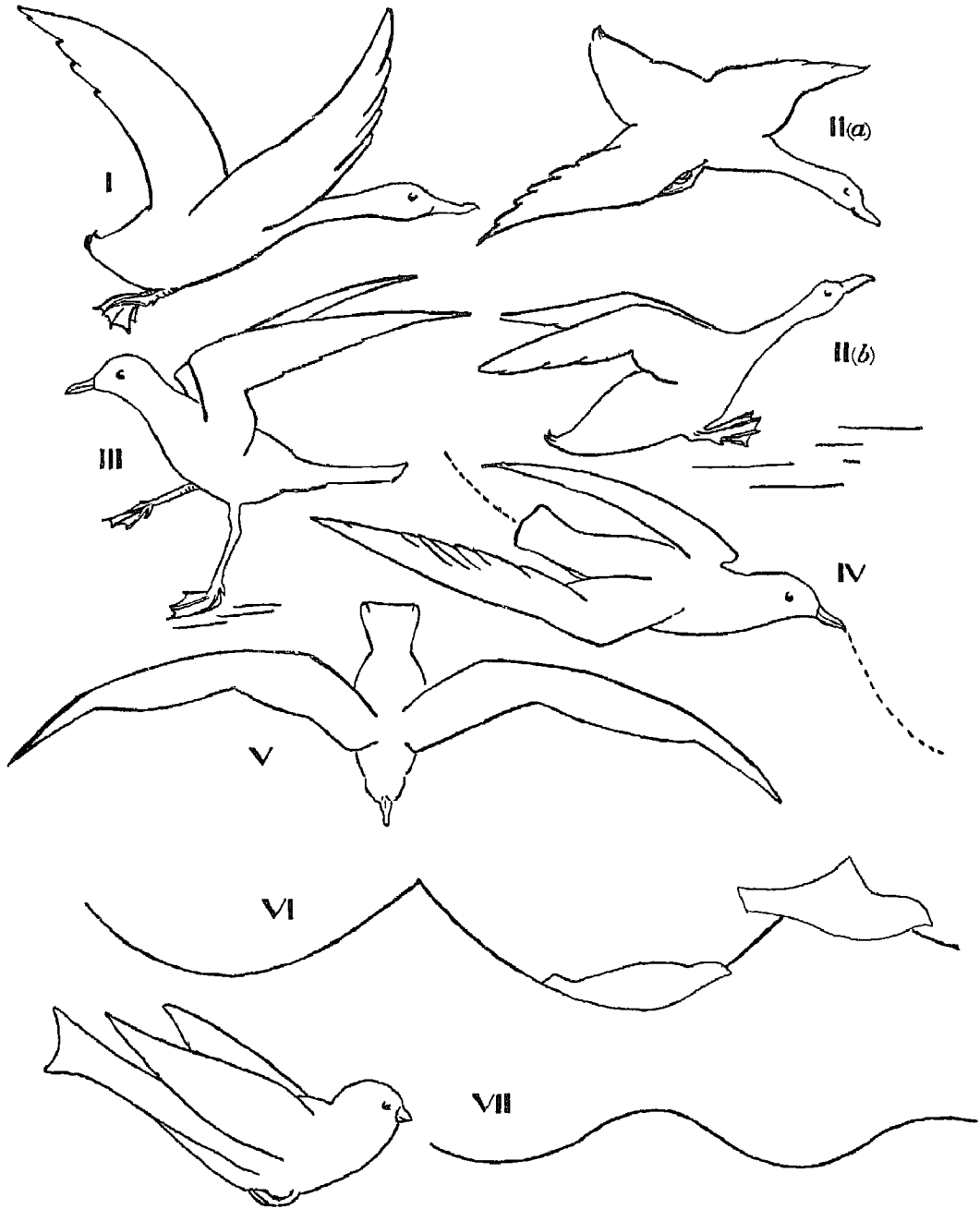
I. Get the children to describe concisely the distinguishing points by which each bird can be recognised, placing the most striking first in the list

II. Notice the position each bird occupied in the water The ducks were low in the water, which came well up round the breast. When they tilted themselves backwards, or came out on land, it could be seen that their legs were placed far back Explain that this position probably helps them to turn the body easily with a slight stroke, just as a long boat punted or rowed from one end responds more readily than a short one rowed from the middle. The gulls, which fly more than they swim, are more upright than ducks, they are higher out of the water, and their legs are placed much farther forward.

Let the children describe the paddling movements of the ducks (and gulls, if they have seen them, but gulls usually swim farther out) The feet move alternately for gentle paddling, but the ducks sometimes take a few strong strokes with both feet together. The webbed foot scoops the water backwards The movement can be beautifully seen in the deliberate strokes a swan makes with both feet together. If ducks want to move really quickly through some sudden alarm, they generally take a low, skimming flight, and alight again beyond the dangerous area. Gulls, too, fly at the least alarm. Note that the whole length of the foot cannot be seen. The heel, projecting backwards, is close to the body, and the foot in all birds is very much lengthened. The actual ankle joint is not above the ankle bones, as in ourselves, but between them, so that the upper part of the ankle is fused with the leg, and the lower part with the foot.

Ask if the children noticed any peculiarities of movement The Moorhen jerks its head all the time it is swimming, the Tufted Ducks and Dabchicks frequently dive completely under the water and come up some distance away; the Mallard dives with the posterior end of the body tilted almost vertically above the surface

Some birds may have been seen to enter the water Gulls alight from flying, dropping with the wings almost touching above the back, and then closing them with a sudden, noiseless movement. Their feet, which were pressed back under the body, hang down as they descend and enter the water first. They make no splash and at once float quietly on the water Ducks, on the other hand, alighting with expanded wings and neck and head stretched forwards, make a great commotion by beating the water with their feet and perhaps with their wings, as they skim quickly along with the impetus of their flight, then let themselves down into a horizontal position. The Moorhen may fly in from the bank, flying very low and alight-

Plate IX

Birds in Flight

MALLARD I In flight II (*a*) and II (*b*) Entering the water
GULL III. Starting to fly IV Downward fall V Maintaining stationary position in the wind.
HOUSE SPARROW VI Diagram to show flight
YELLOW HAMMER VII Diagram to show flight.

ing easily, but skimming the water for a little distance before it can check itself. Both ducks and moorhens will often walk or drop in from the bank, without spreading the wings.

In order to rise from the water, ducks take off by tilting the body backwards, spreading their wings, and pressing the surface with their feet, as from a diving board, then making strong wing strokes until their flight is established. It takes them some time to rise high Gulls, on the other hand, leave the water so rapidly that no "take-off" can be distinguished They raise the wings high, and with one strong stroke clear the water. After a few strokes which drive them almost horizontally, they have such force and control that they can rise high in the air, and begin the long sweeping curves and veering flights that are characteristic of them If food is thrown to gulls, they can divert their course and catch it on the wing without checking their flight. It will be seen, then, that the gulls' powers of flight are much more highly developed than those of the ducks which can obtain food only by diving for it to the muddy bottom of the water. Gulls either see their prey from above and make a rapid swooping dive, or search the shore at low tide, where one can see them by hundreds, for shellfish, lugworms, shrimps and small crabs, which are momentarily left exposed as the tide recedes. Most of these are creatures which burrow in the sand, and come to the surface to breathe and feed only when they are covered with water. The gulls feed, too, in the ploughed fields as already mentioned

Sketches might be made, either at the time or from stuffed specimens, to show the difference between a gull's and a duck's beak If a duck's head can be obtained from a poulterer, and cleaned by boiling or by leaving in dilute potash and afterwards scraping, the inside of the upper bill can be shown to be thrown into oblique ridges at each side The grooves between serve as a sieve, through which water and fine mud can trickle out, leaving any minute worms or other animals caught in the bill. Ducks depend to a great extent on such small food, though they eat fishes, frogs, snails, and even mice if they come their way.

The position of ducks when flying is peculiar, owing to the fact that the wings are placed far back, the tail is very short, and the neck is stretched forwards A number of ducks seen flying from one locality to another has the well-known **V** formation with the leader at the apex. Although compared with gulls the flight is cumbersome and lacking in versatility, yet ducks can cover great distances in their migrations.

III. Children's records.—It is not necessary to take up and discuss everything that the children have seen, in fact, the lesson will probably gain in clearness if this is not attempted Other points can be dealt with by letting the children write a free account of what has most interested them. The teacher may give guidance with blackboard headings based on the preliminary instructions given before the visit The children might be encouraged to illustrate their accounts by sketches made at the time, or from memory, or by photographs and pictures cut from newspapers and magazines.

It is a good plan for each child to make a special book for bird study, perhaps with the title *My Bird Book* When once interest has been aroused, the subject matter included need not be limited to one bird, but can refer to any birds To some children this kind of collection will be a satisfactory substitute for a collection of nests and eggs. It can be added to throughout the year, and even in subsequent years, since the "hobby-value" is an important aspect of Nature Study. It would be wise to have the book substantially made in a handwork lesson. Scrap cardboard covered with brown or grey paper would make loose covers into which the pages might be laced Clear, simple lettering is attractive and a panel or border decoration having some reference

to the subject might be added There is no need for all the books to be alike in size, shape or content Stiff brown paper pages allow for the pasting on of written pages and sketches made out of doors, as well as for printed matter. Part of the book might be devoted to a diary Though class charts are useful for recording such events as the arrival of birds, dates and places where they are heard singing, and nest building, the study of birds is such an individual interest that it lends itself better to individual records than to class work.

NOTES ON THE RECOGNITION OF WATER BIRDS COMMONLY SEEN ON ARTIFICIAL LAKES IN THE WINTER

The Mallard or Wild Duck

Appearance.—The Male.—Distinguished in winter by bright iridescent green head, fawn to grey body with dark broad purple bar edged with black and white, the speculum, in the wings, chestnut breast and white collar All male ducks or drakes have a curled feather in the tail Feet orange, completely webbed, length, 23–24 in.

The Female.—Speckled brown and fawn plumage, with purple, black and white wing bar, as in drake

Habits.—These are surface-feeding ducks, only dipping the head and front of the body. They are seen on most natural waters and many artificial lakes in towns, inland in the winter, arriving from September and beginning to go farther north about March. Some are British residents and others passing migrants or winter residents only. They pair early in the year, showing very marked and varied courtship antics, often prolonged after pairing Two drakes may be seen posturing on the water to a duck, chasing her and one another, standing up in the water and beating with the wings, dipping the bill frequently in the water, and at a rather later stage, duck and drake will repeatedly rise from the water and take long flights together, returning after a few minutes or perhaps a quarter of an hour later. The drake will chase away other drakes. From June onwards, the captive or tame ones may be seen gradually changing the general plumage till it approximates to that of the female, when an autumn moult of all but the flight feathers restores the winter colouring The duck looks after the ducklings while the male is in retirement moulting the flight feathers The visitors repair to fens, salt marshes and seashore in the summer, after the breeding time.

The Teal

The Male.—Length only 14½ in. The smallest British duck. Plumage streaked very delicately with zigzag black and white, body very smooth and neat Predominating colours black and grey, with bright chestnut head and neck, and a broad green band edged with fawn surrounding the eye and passing to the neck. Breast whitish, mottled with black spots, speculum black and green.

The Female.—Mottled grey, brown and black, with speculum as in drake (similar to Wild Duck in colour).

The Widgeon

The Male.—Length, 20 in. Bears a general similarity to the Teal, but is larger, and has no green on the head. Instead, the chestnut ground colour of head and neck is spotted with black, and a cream band runs from the bill to the crown of the head, with a narrow collar of delicate black and white wavy lines over the back and sides. Speculum as in Teal—green edged with black The chestnut breast deepens to chocolate at the sides.

The Female.—Dusky brown and red, and the speculum is not iridescent green. Never breed in our country, but come to us for the

winter from Europe Its note in flight is "Whew-w-w," a shrill whistle which is distinctive. It is very plentiful.

The Golden Eye

This bird may often be seen in parks, and needs little description beyond its name, which gives its distinctive character. It is black and white, with a black head and neck, and a white patch under the eye with a violet and green lustre, orange and black feet, and a very bright golden eye. The female is dark grey, almost black, with eyes and feet pale yellow. The bill is shorter, more pointed and not so flat as in the birds previously described. In flight their wings make a noise said to be like the tinkling of bells. It is not a voluntary visitor, but only introduced.

The Tufted Duck

A small, dapper and perky little creature, bobbing incessantly under water, for he dives completely for food Black above and white below, with a black crest. The black extends to the breast. The female is dusky brown. Tufted Ducks, too, have a golden eye (but not so bright as in the Golden Eye) but there is no white spot below it, and the rest of the colouring is distinctive The crest droops backwards towards the neck.

The Pintail

Length 26 in. to tip of tail. The male is a very dainty, trim bird, with a small, delicately poised head, long black slender beak and two black tail feathers drawn out into a long, tapering point Colouring generally black, grey and white, with fine zigzag lines, with head and neck deep brown Speculum iridescent green-purple, bounded by brown and white Female much less distinctive, with short pointed tail, much duller plumage, and yellowish speculum.

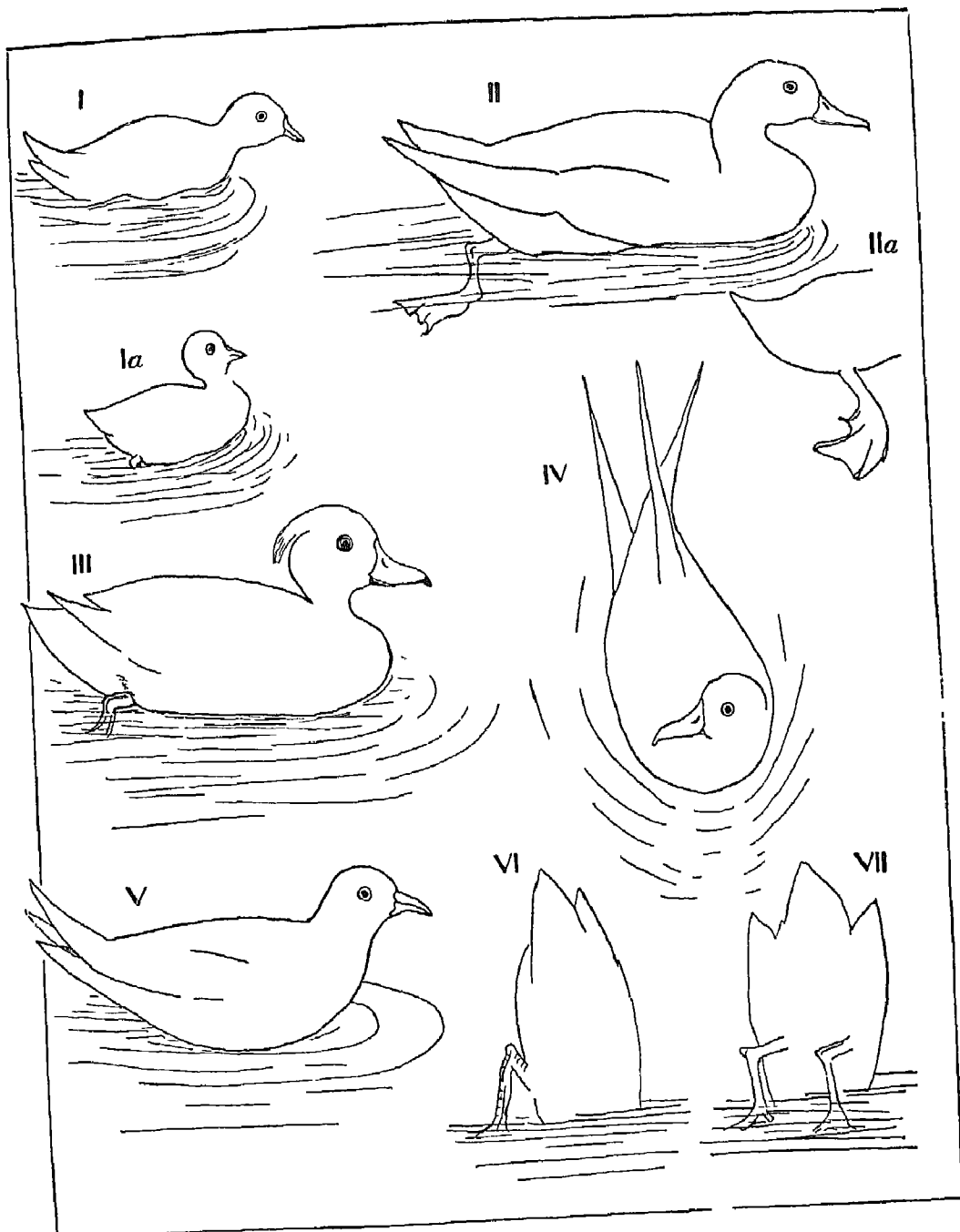
The Sheldrake

Length, 25 to 26 in General impression sharply marked black and white, very striking, with head and throat glossy black, shot with green and a broad band of chestnut across the chest and shoulders. Speculum shot green and purple, suffused with bronze. Crimson bill with a crimson knob at the base (as in a Swan) Female or Shelduck shows less marked difference than usual, though it is less bright and has no knob on the bill. The largest British duck It is typically a seaside bird, nesting in rabbit holes or other holes in sandhills, but is often introduced to ornamental waters where it is kept by clipping the wings. It is known as the "Burrow-duck" on account of its nesting habit.

The Bernacle Goose

The Bernacle or Barnacle is a Northern Bird, but sometimes kept in parks It is small for a goose (25 in.) but has the typical short, pointed bill, and short broad head which distinguishes it from ducks (in which the head is usually a regular oval in profile) Plumage striated black, white and grey in fine wavy lines; crown of head, neck, quills and tail black; cheeks, throat and underparts white, and black feet and bill. Very striking and handsome.

The Blackheaded Gull

The Blackheaded Gull is a very common visitor to London parks, and to inland fields throughout the country. It is about the same size as the Common Gull, but is distinguished from it in summer by its black cap, really a very dark brown, extending to the neck, which after the autumn moult is represented only by one or two dark brown spots near the eyes, and by its orange-red beak and legs. The underparts are white and upper parts blue-grey. The wings are white and ash-grey, but the primaries, or flight feathers of the lower wing bone, are white, edged with ash and tipped with black.

WATER BIRDS IN THE WATER

I MOORHEN Ia DABCHICK II MALLARD IIa Position of leg when being brought forward. III, TUFTED DUCK IV PINTAIL DUCK V GULL—note how high it floats VI and VII DUCK DIVING.

Male and Female.—Alike. Length, 17 in.

Young birds.—Mottled grey and brown, as in Common Gull, but attain a light brown cap before the autumn.

The Common Gull

Length, 17 in Head and neck pure white in summer, but with dusky spots in winter, not so distinct as in Blackheaded Gull, however. Bill greenish yellow and feet greenish grey or ash. Otherwise general colouring similar to former, both in young and adult.

Terns

Smaller, more slender and swallowlike, with longer wings than the gulls, though the colouring is in a general way similar.

The Moorhen or Water Hen

Appearance.—Length, 13 in. Appears to be black, with orange bill (tipped with lemon) and greenish-lemon legs, with unusually long feet for its size, and long legs. At close quarters, plumage seen to be deep orange-brown, slate grey underneath, with white streaks on the flanks. The females are *brighter* than the males—an exceptional feature. Distinguished at a glance from the **Coot** by the white bill of the latter, surmounted by a white spot The Coot is also larger, 16 in. long.

Habits.—Both have a very similar position on the water, low down with the breast a little sunk, swimming with the head nodding all the time, and dipping the head and flicking the tail, and on land walking with a high-stepping strut It dives well, and is said to use the wings for *swimming* under water.

Food.—Grain and seeds, small animals, floating weeds and other water plants.

The Dabchick, or Little Grebe

This is a brisk, active, independent little bird, swimming about on its own business and holding aloof from the ducks on the pond in a park, diving for fish and shellfish, and appearing some distance away. It swims with a curious lateral stroke of its large, paddlelike feet. It has an immature look, owing to its habit of fluffing up the feathers The feathers are short and very fine and silky It is brown or greyish brown, white underneath, with a very short tail and rounded wings. It frequently takes short flights, fluttering quickly, then dropping and diving silently It looks rather like a very large, fluffy chicken. It has a soft, subdued call, and a loud, clear rippling phrase It usually makes a floating nest of water weeds in the reeds beside a sluggish river. There is a general impression, supported by some naturalists, that it can swim by using its wings under water, but Mr Coward, who has watched it very carefully, is certain that this never happens

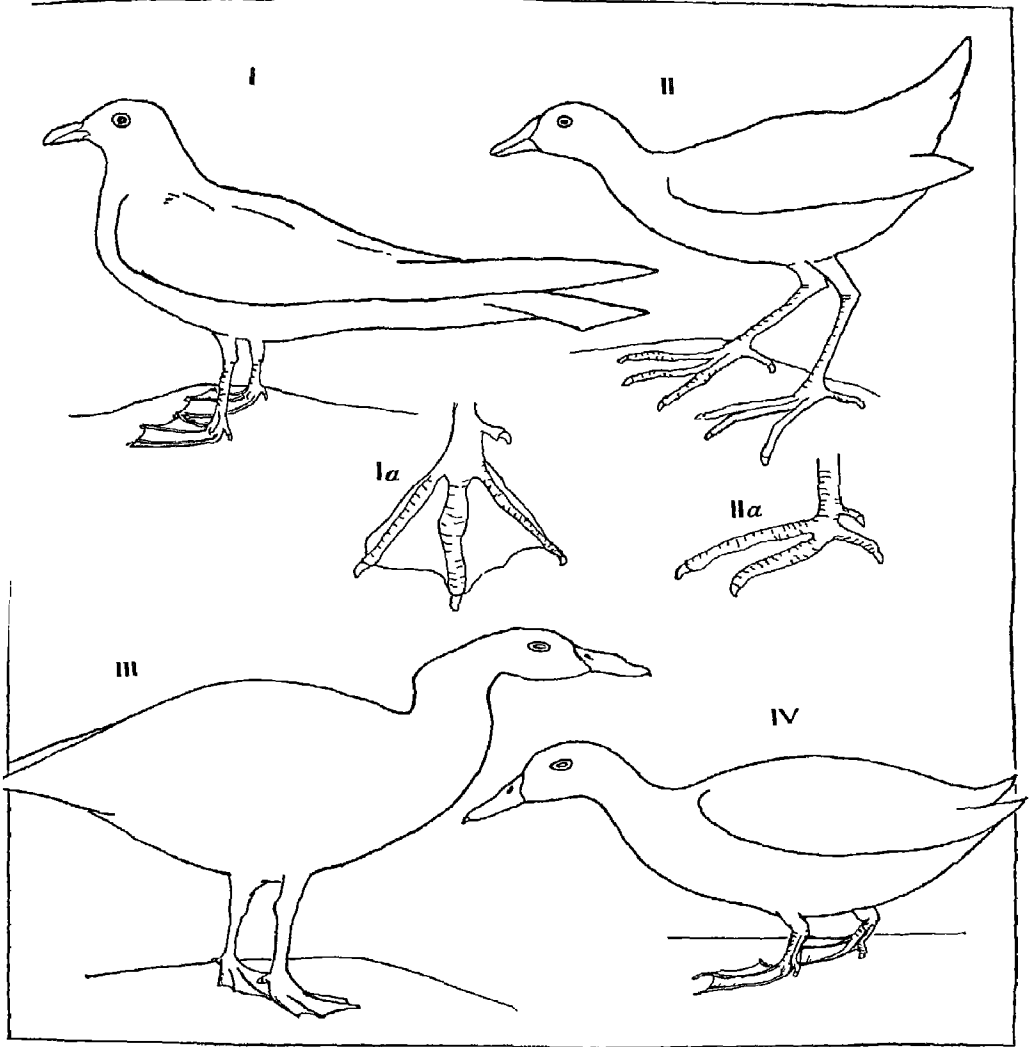
Swans

Three swans are commonly seen, two of which have wild representatives in Britain—the Whooper Swan and Berwick's Swan. The Mute Swan is very common as a tame bird but is not really indigenous.

The Mute Swan may be recognised by the black knob or "berry" at the base of the bill, which is orange, with a narrow black line along the edge reaching to the eye.

The Whooper has a lemon-yellow beak with a black tip, the yellow extending well below the nostril

Berwick's Swan also has the upper part yellow, but it is less extensive, reaching only to the nostril, the lower part being black. As Mr. Coward points out, the pattern of these two is the reverse of the Mute Swan, the tip being black, whereas it is orange in the Mute Swan.

PLATE XI

WATER BIRDS ON LAND

I. GULL Ia Foot of Gull II MOORHEN IIa. Foot of Moorhen III GOOSE. IV MALLARD

X. CLASSIFICATION OF BIRDS ACCORDING TO HABITS

THE natural classification of birds is based on details too technical for anyone but the expert to grasp, yet the nature student requires some system of grouping which will help him to understand the lives of birds and to remember what he has learnt. The plan usually adopted for this purpose is to classify birds according to their habits, especially their habits of feeding and the modifications of the beak and feet which are associated with it. In some cases this scheme includes natural relationships, for instance, in the Birds of Prey.

THE LESSON

Introduction.—The children will have noticed that most of the birds they have been watching come to the ground only in search of food, but spend most of their time either in trees and bushes, or on poles, fences and the edges of roofs, where they are out of danger of cats and other enemies These birds belong to the group of *Perching Birds* Compare with chickens, which are *Scratchers*, and ducks which are *Swimmers*

This paves the way for a broad classification according to general habits, especially feeding

Let the children enumerate the birds they have already studied, and make a blackboard list. Then tell the children that it will help them to remember what they have learnt, if they can group the birds together in some way according to common characteristics. The following suggestions for grouping have been made by children:— According to size, colour, whether they sing or not, whether they migrate or not, where they build their nests Remind them of the contrast which was observed between hard-billed and soft-billed birds, and ask what characteristics of the two groups they remember.

Tell them that the type of food and related structure of the beak is found to be a useful quality to choose, and that in many cases special structures of the feet are also associated with the method of feeding They will probably suggest as an example that the ducks, which obtain food from the water, have webbed feet which enable them to swim in search of it

I. Let the children try to classify the birds they have already studied on the following lines —

(*a*) *Perching birds* The soft-billed and hard-billed small birds are often grouped together in this way, because, when not actually in search of food on the ground or on the wing, they rest in the trees and hedges, where they also spend the night, and find shelter in winter A special tendon in the foot of all birds which roost tightens automatically on contact with the roost, and prevents the bird from falling off in its sleep (The tendon can be seen in a hen's foot severed from the leg) This group includes most of the song birds

(*b*) *Swimming birds.* Birds which feed in water, e g. Ducks, have broadly webbed feet and a flattened bill provided with grooves which sift the mud and keep back small creatures as food Ducks are closely related to Geese, which, however, do not feed in the water, but on grass. Their beaks are not so flat Gulls, which also have webbed feet, can both dive from a height and swim for food This links them up with the Diving birds such as the Cormorant, and Great Diver, and the Penguins, which have lost all power of flight, using their wings only as flippers to swim through the water. Gulls are mainly sea birds, but frequently they

come inland in winter, whereas Ducks chiefly frequent inland water, though some spend part of their time on the seashore. The birds which get food by diving usually have a strong, sharply pointed beak for holding slippery victims.

II. Let the class think of any other birds they know and try to assign them to a group.

(*a*) *Wading birds* may be suggested by the idea of swimming birds. The Heron is fairly common, and the Snipe and many other small wading birds frequent our river estuaries, finding shellfish and worms in the sand and mud, and small fish, crabs and shrimps in the shallow water between the tides Their long legs lift them above the water, they spear their prey with long, sharp beaks, and they reach down to search for it with their long necks. Amongst foreign birds the Stork may be mentioned and some account may be given of its habits, and the friendly way in which it is regarded in the countries where it nests or winters.

(*b*) *Birds of Prey* are likely to be suggested. The *nightbirds* are represented by the Owls, and the *daybirds* by the Hawks, Kites and Eagles Country children may be able to recognise the Sparrow Hawk and Kestrel A pair of Kestrels is commonly seen hovering systematically over a field The Kestrel is larger than the Sparrow Hawk, and in the air its wings appear to reach backwards to the tip of the tail, whereas in the Sparrow Hawk they are shorter than the tail The tawny cinnamon colour of the Kestrel is striking at close quarters. It preys chiefly on small mammals, whereas the Sparrow Hawk hunts chiefly birds These birds of prey are all distinguished by the strong down-curved beak and curved talons, which close automatically in the flesh of the victim as the bird swoops down upon it. The beak is often driven into the skull, killing the prey instantly, and is then used in tearing the flesh.

(*c*) *Carrion birds* are a miscellaneous group of mixed habits and various natural relationships. They might very well be left out here unless the children ask about any of them The Vultures are related to the Eagles, and may be regarded as degenerate in their habits, but very useful as scavengers in hot countries where there are primitive ideas of sanitation The Carrion Crows do not confine themselves to dead food They are related to the Rooks, Jackdaws and Starlings, which feed upon worms, insects and small animals generally.

(*d*) *The Scratchers* are ground-dwelling birds, feeding chiefly on grain They have strong, short claws and beak, useful for pecking and scratching the soil. They include the Domestic Fowl, Grouse, Partridge, Pheasant and most game birds

(*e*) *The Running birds* are a small group, of which the Ostrich is the best known. Their distribution is limited to Africa, Australia and South America They are amongst the oldest races of existing birds, and have almost lost their wings. In the Ostrich the wing is very small and its feathers are the familiar, long, soft plumes, which are useless for flight Their relations are the Emu of Australia and the Cassowary of South America All three are plain-dwellers and swift runners The little Apteryx or Kiwi of New Zealand has become extinct within recent times.

III. If there is a local museum, the best way of taking this lesson would be as a preparation for a visit. Each child could then be given a prepared card with the classification arranged, so that he could enter notes on the birds to be found, accompanied by sketches of the beaks and feet. The children might also try to collect pictures, to be mounted in their notebooks, illustrating the various groups.

If there is no museum, collect pictures and show by blackboard diagrams the chief characteristics, and let the children try to make their own collections also.

XI. STRUCTURE OF BIRDS

THE structure of a bird's body has been profoundly modified in connection with the habit of flight. There seems to be no doubt that in the geological period known as the Mesozoic, birds originated from some small and insignificant members of the great group of Reptiles, which then dominated the earth. Professor Thomson, in his *Biology of Birds*, suggests that these were lean, wiry, lizardlike creatures, very active and alert in habit, possibly already able to maintain a high and steady blood temperature and therefore to retain the heat of the body He thinks they may already have begun to select concentrated, nutritious food, and to digest it very completely. Possibly they were already able to obtain and utilise a good supply of oxygen, in which case the energy obtained from their food and stored in the muscles would readily be available for their activities. Such creatures would be ready for new adventures. They may have leapt about amongst the branches of trees, and begun to use their forelegs to help them to balance, developing wings later.

There is no evidence of the way in which feathers made their appearance. They are skin outgrowths, supposed to be modified, branching scales, but no intermediate stages exist to throw light on their origin. They are the warmest and lightest covering known Since the feathers become frayed and worn, they are renewed yearly Moulting usually occurs in the autumn, when all the flight feathers are dropped, usually in pairs, and for some time the bird is unable to fly, or very much impeded in flight, and many go into hiding. The covering or contour feathers are also shed. In many birds the tips of the new feathers are neutrally coloured, fawn or grey, and since these are the parts which show, the bird may have a rather drab appearance during the winter. By the spring the tips have worn away, and the bird appears in his bright, characteristic spring plumage

Male ducks and geese are an exception to the general rule in carrying out the chief moult early in the summer (June), while the young birds still need care The father retires, leaving the mother to assume the full cares of a family, and stays in seclusion until his distinctive plumage has been shed The Mallard or Common Wild Drake emerges almost indistinguishable from the female, but gradually a second moult of the contour feathers makes room for the brightly

coloured winter coat, which lasts till after the breeding season.

The earliest bird we know appears in the upper Jurassic rocks of the Mesozoic period. There are only two specimens of this Mesozoic bird, the famous Archaeopteryx (ancient-bird or first-bird) found in certain limestone rocks in Bavaria. The complete skeleton was preserved in each case, slightly distorted but in excellent condition, with an impression of the complete series of flight feathers or quills of the wings and tail. Its skull was drawn out into beaklike facial bones, and had the general character of the head of a modern bird Its feet and legs were those of a modern bird. The beak, however, was provided with sharp, needle-like reptilian teeth, the wing bones were like the forelegs of an ordinary quadruped, and each fully feathered wing terminated in three toes with sharp claws Its tail, instead of being a short stump of bone, consisted of a long chain of vertebrae with feathers joined along its length. This creature therefore showed relationships with both reptiles and modern birds and provided a valuable chapter in the tale of their racial history

Considered as a flying machine, a bird is a body heavier than air, capable of being propelled through the air by its own engine power, provided by the heart and muscles. Its wings serve both as propellers and planes to increase the resisting surface. It is essential that both the body and the levers working upon it and forcing it forward shall be rigid Hence the bones of the body have become fused or bound together, while the bones of the hand have been reduced in number and fused together to form, with the arm bones, a firm rod which makes a strong stroke, pressing downwards and backwards upon the air, and thus raising the body and driving it forwards.

In order to produce a wide surface which will offer great resistance to the air without adding appreciably to the weight, the wing is provided with strong flight feathers, fixed to the bones of the forearm and hand. Muscles enable the feathers to be opened or closed The wing is forced down by the contraction of a large breast muscle, attached to the front of the wing and to the broad expanse of bone covering the chest and projecting forwards as the strong ridge of the keel. This is the breastbone, very much enlarged It remains to bring the wing back into position for the next stroke without checking the flight by offering any further resistance to the wind The wing is drawn upwards by the contraction of a smaller muscle, also attached to the breastbone, but passing through a hole where the wing joins the shoulder blade, as over a pulley, to its insertion on the front of the upper wing bone At the same time the feathers are slightly separated to allow the air to pass through them and thus reduce the resistance. (This separation can be noticed in pigeons as the wings meet over the back when they rise from the ground, or in rooks raising their wings as they pass overhead) While the wing as a whole accomplishes the downward and return stroke, the tips are said to describe a figure 8.

To increase the supply of oxygen, the lungs are prolonged into air sacs which act as reservoirs whose supply is available as the air is driven out, so that oxygen can be extracted by the blood in the walls of the lungs during both phases of the process of respiration

The use of the forelimbs for flight has thrown the weight of the body backwards on to the hip girdle and hind legs, which are strengthened and modified to support it.

THE LESSON

Aim.—To understand the outstanding features of the structure of birds, especially in relation to flight.

Material.—If possible, a stuffed bird and skeleton, or the breast bone or keel of a fowl, which can be prepared by boiling after the flesh has been eaten, and then brushing away what remains of the flesh. If no

stuffed bird is available, use pictures of a pigeon, crow or other strong-flying bird, both in flight and at rest Some *flight* feathers of a wing from a poulterer, *covert* feathers, and if possible some *down.*

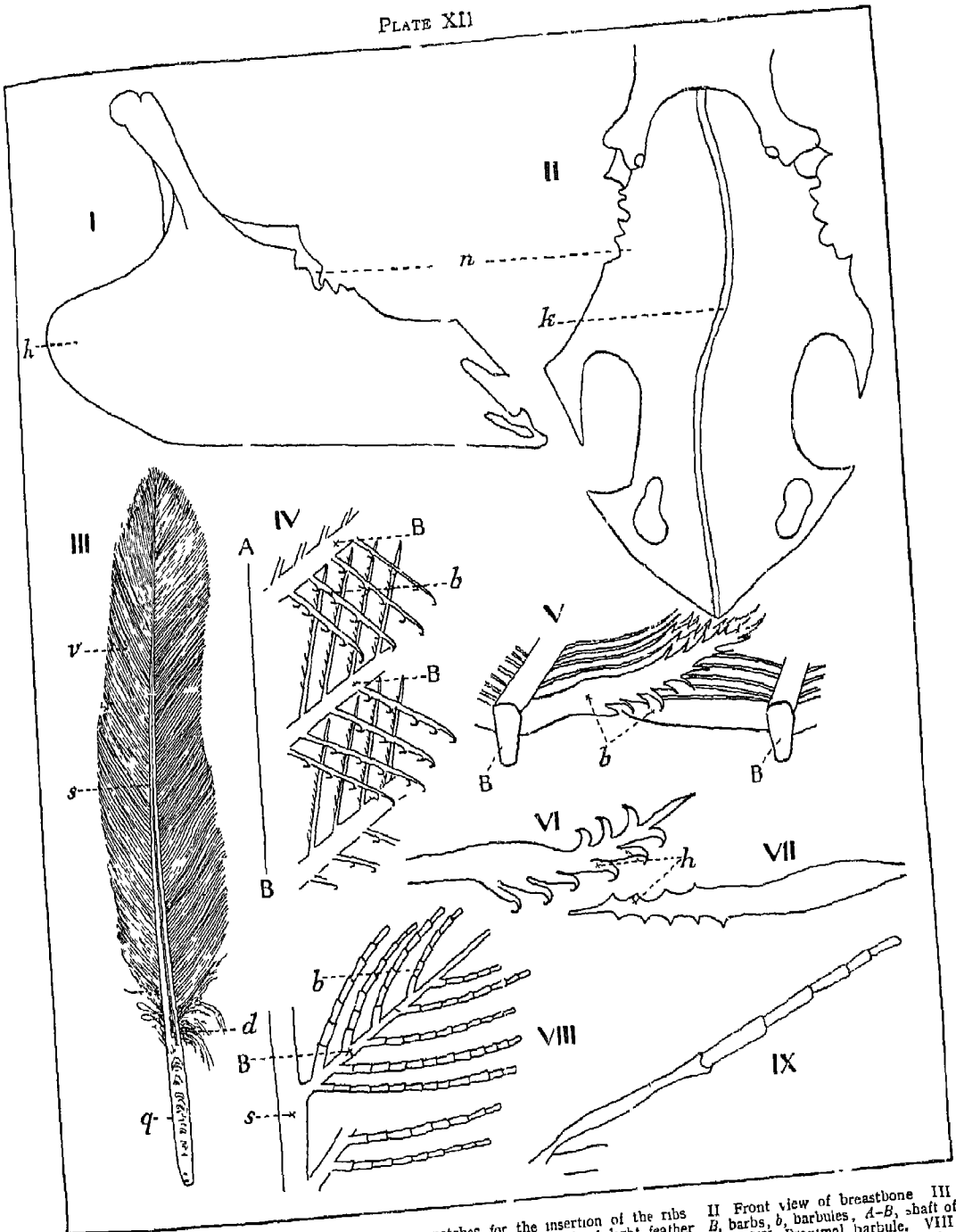
Introduction.—Ask the children what habit, or action, distinguishes the bird from nearly all the other animals they know, and in what ways the habit of flight is an advantage to birds. They will probably suggest that flight enables birds to roam widely in search of food, to escape from cats and other enemies, to build their nests in safe places, and in many cases to escape the cold winter by flying to warmer countries where there is more food. Tell them that, having studied the habits of birds, it is now time to think about the way they are made, and how their structure helps them in their life, especially in flight.

I. Let the class try to suggest in what way the structure is connected with the habit of flight. They will probably think first of the wings. Try to recall the appearance of the wings in swallows, sea gulls, hens, sparrows, pigeons, rooks (or any half-dozen birds the children have watched) which will bring out the contrast in shape. Sketch on the blackboard some ot the shapes you have noticed, e g. the swallow or swift, the sparrow or starling. In the first (and in the gull) there is a long, narrow wing; while in the second, it makes a short, broad triangle, almost equal-sided. Which birds are the better fliers? Although many of the small birds with short wings can fly long distances at times, e g in migration, they are unable to dart and curve and wheel as the gulls and swallows can, or to check suddenly on the wing to catch food or change their direction completely The long, narrow wing which presents a long edge to the wind is evidently the better shape for control (*Cf.* the planes of an aeroplane) It is also important that the wing surface shall be large to buoy up the body (*Cf* a kite) The wings have a weight to lift.

Now look at the shape of the body. In most birds it is long and spindle-shaped, that is, tapering to a point at each end. This is the best shape for cutting the air. (*Cf.* a boat cutting the water.) A broad boat cannot move so easily as a narrow, pointed one, because it meets with more resistance Think of the shape of the Oxford and Cambridge racing boats. In the same way, the slim, pointed body of a bird offers little resistance to the air and meets with little. The body is light in weight, the bones are hollow, and it has the lightest known covering in the feathers

Tell the children that the feathers serve two purposes, and let them try to think what they are Probably they will suggest that they keep the body warm. Show them the flight and covert (covering) feathers, and ask which they think will serve this purpose. They will probably have noticed that the small, soft feathers cover the whole body closely, overlapping and lying quite flat These are sometimes also called *contour* feathers, because they follow the shape of the body and seem to mould it.

Where do we find the large, strong feathers? (Standing out from the wings and tail) Perhaps the children will suggest that it is these that make the large surface already spoken of as necessary for flight. These are called flight feathers or sometimes, *quill* feathers. Give them out and let the children notice how they are made Each consists of a hollow base or quill (which fits over a small projection from the flesh, a *papilla,* supplying the feather with food and containing a nerve-ending), a *vane* or *web* made up of many *barbs* lying side by side, and a *midrib* or *shaft* which supports the vane

How is the feather kept rigid, so that it will resist the wind and not give way? Partly by the supporting shaft, but also by the way in which the barbs fit together. Let the children examine the barbs of a feather, and separate one or two They will notice that they cannot bring them so closely together again This is because they are locked together by a special arrangement

PIGEON I Keel seen from the left side (k) n, notches for the insertion of the ribs II Front view of breastbone III Quill feather of fowl v, vane, s, shaft, q, quill IV Diagram to show web of flight feather B, barbs, b, barbules, A–B, shaft of feather V Diagram to show barbules (b) interlocking B, barb VI Distal barbule h, hooks VII. Proximal barbule. VIII Downy part of feather (d) magnified to show straight barbules (b) b, barb, s, shaft IX. Barbule of downy part of feather showing how it is notched

of very delicate hooks. Show by a blackboard diagram how two barbs interlock. Each barb has a row of small branches, or barbules at each side On one side barbules are provided with little hooks, on the other side they are grooved The hooks of one set of barbules interlock with the grooved edges of the next set, and so hold the vane together. Notice that at the base of each feather there are some downy barbs which do not interlock. This part of the feather is covered by others. Its soft, fluffy barbs hold a layer of air and so help to keep the body warm, while the exposed part is locked into a firm web which prevents them from being blown about by the wind. If any nestling down is available for examination, notice that here the barbs are all soft and free, and there is no shaft

Now consider the actual strokes by which flight is accomplished. The children will have noticed that the wings are moved up and down The downward stroke forces the air downwards and backwards, and this pushes the body forwards The wing recovers its position, the feathers separating to allow air to pass through. In order to make a strong downward stroke the wing must have something to work against This is provided by the rigid framework of the body Show the skeleton, and draw attention to the firm, cagelike structure which encloses all the organs Notice the great, broad breastbone with the strong ridge or keel down the front This is where the wing muscles are attached By tightening these muscles the bird can pull its wings down forcibly against the sides of the body and so move forward by pressing the air out from under them

II. Let the children sketch a flight feather and a covert feather, naming the parts and explaining what purposes the feathers serve. They might copy the blackboard sketch of two sets of barbules interlocked. Let them make a sketch of the breastbone to show the keel on which the wing muscles work, and write a short explanatory note.

N B. Although for convenient reference the whole series of lessons on birds is given together, it would be better to spread the matter over two years' study, as indicated in the syllabus, and give the lessons on structure and classification in the fourth year, when the children will be old enough to appreciate the points raised.

XII. MOSSES

THE mosses appeal to children aesthetically, because of their smallness, daintiness and variety of form An additional interest may be given to many of them if they are regarded as pioneers in the colonisation of freshly formed or newly exposed soil. They show great range in their habitation. Some carpet the damp floors of woods, or tree trunks and stumps, forming luxuriant vegetation in the late autumn and winter, and so obtain light and air when all other growths have died down Others are found in dry, exposed situations, such as old walls and open ground.

Without attempting either to identify many forms, or to study their structure, interest may be centred round some of these biological features Probably the best approach is to draw the children's attention to some moss which is common in the neighbourhood, spending a class period studying it, preferably when the fruit bodies or capsules containing spores are present Then suggest that the children shall collect examples of any others they can find, arranging them attractively in small saucers on the Nature Table (and keeping them moist) with descriptive labels, such as "Cushion moss found on dry wall," "Hairy cushion moss," "Fernlike trailing moss from a wood floor" Such terms as trailing moss, erect moss, cushion moss, serve to surmount the difficulty of botanical naming. The mosses can be grouped together under such headings, invented as occasion arises.

Two common mosses will be briefly described in order to indicate the kind of characteristics that the teacher and children, with no expert knowledge, may observe and read about. They will then realise that this is another group of non-flowering plants, and though the spores cannot actually be seen, the capsules which contain them will be found.

The Common Cord Moss (*Funaria*) is found on walls and garden paths, and especially on the ground in clearings made by burning grass, e g. railway embankments and roadsides It is a dark green moss of a compact habit, creeping along the ground and sending up delicate erect branches with narrow, pointed leaves arranged in a close spiral. These branches may be ½ in high. The ripe capsules, which may be found almost all the year round, are bright yellowish-brown, and lean over to one side At first they are tipped by an inflated, pointed cap.

which slips off, leaving the flat lid of the capsule exposed This finally ruptures at the edge, and the spores drop out and are carried away. The stems are stiff, wiry and brown The moss spreads by pushing out new branches along the ground Gradually the older parts die down, but the branches are fixed to the soil by fine rootlike threads on the under side called *rhizoids* (rhiza= Greek word for root) so that the new growths can obtain their own food independently. At first the capsules are very thin, upright and green, then they thicken and bend sideways, and turn brown, hard and woody Their stalks become twisted in dry weather, but straighten out when it is wet.

The Common Hair Moss, or Haircapped Moss (*Polytrichum*) is one of the largest mosses, 4 to 6 in high, with stiff leaves half an inch long, spirally arranged round an erect stem, and curved slightly downwards. Each has a distinct midrib Each branch stands alone and can be pulled away independently, though there is a connecting stem running along the ground Each upright stem is brown and woody, the lower leaves turning brown. It is rooted by rhizoids The capsules, found in the autumn, are borne singly, at the top of the stems, each on a long stalk Each is a long urn-shaped vessel, constricted just above the stalk, then swelling out and slightly drawn in again just below the lid It is about ½ in long It is tipped by a little pointed, hairy cap, which falls away when it is ripe.

Sometimes the stems will be found bearing cups of bright red leaves at the top. These are sometimes termed the flowers, but they are not flowers, and children would not understand their significance They bear the male reproductive organs containing cells, which, by uniting with female cells found in smaller, less conspicuous cups, result in the growth of the capsule and ultimately the spores.

The Hair Moss is found in damp situations, unlike the Cord Moss which grows in drier places. It is common on moorlands amongst Bog Moss and Heather, but it is also found on shady banks at the foot of hedges and in woods. It is common in these positions in the Home Counties

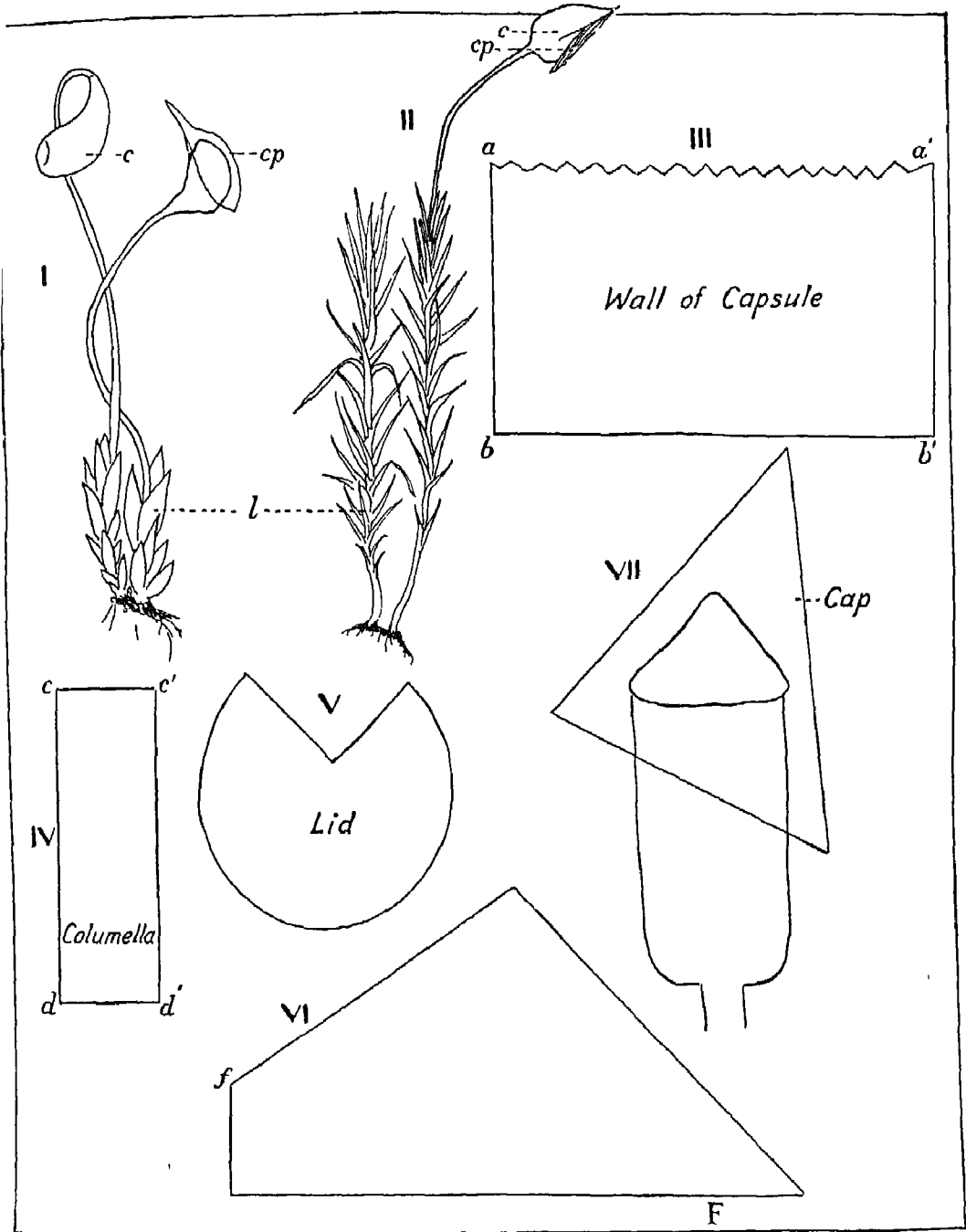
THE LESSON

Aim.—To draw attention to the growth of various common mosses Probably two periods will be needed for the work

Material.—One of the common mosses, e g Hair Moss, bearing its capsules, enough for the children to have a branch or two each, and a clump of the moss arranged as it grows in a saucer. A paper model of a capsule (described below). Examples of mosses found in dry and damp situations, also of trailing mosses and erect and cushion mosses (By cushion mosses are meant those with erect branches crowded very closely together, e g the grey silky-looking moss commonly found in thick, rounded masses on dry walls.)

Introduction.—Give the children the aim of the lesson. Ask them if they have noticed where mosses can be found in the neighbourhood Make a list of the kind of situations, e g. dry walls, damp banks, the floor of woods, creeping in between the grass on damp or exhausted lawns It is unlikely that the children will have noticed that mosses are most abundant in the winter, so tell them this and ask them to keep watch.

Show them the growing moss chosen. Ask them to tell you anything they notice about the way it grows. Does it look as if it came from a wet or a dry place? If the leaves are large and thin, they are probably already beginning to shrivel, and have only been kept alive by keeping them closely covered. The children will notice how delicate they are, and that they need both water in the soil and a damp atmosphere

I. Distribute the material and let the children examine a single branch more closely. Notice the stiff brown stems and

COMMON CORD MOSS (Funaria). I *c*, capsule, *cp*, cap, *l*, leaves
HAIR MOSS (Polytrichum) II *c*, capsule, *cp*, cap, *l*, leaves
MODEL OF A CAPSULE III Wall of capsule, IV Columella V Lid VI Cap VII, Capsule and cap

thin leaves with their veins (in Hair Moss). Notice the spiral arrangement of the leaves and upright growth.

Now examine the capsules. Each grows on a long, slender stalk, and is partly protected by a thin cap Take this off Immediately below it will be seen a little lid When the capsule dries this lid snaps at the ring by which it is joined. The edge of the capsule just below it is turned in, and cut into a number of fine teeth, which touch a central rod passing right through the capsule and continuous with the stalk. It is on this rod, the little column or *columella*, that the spores grow. They drop into the cavity of the capsule as they ripen, but the turned-in teeth and the lid prevent them from dropping out until a suitable moment The spores are carried away by the wind, so that a dry day is essential. When the air is sufficiently dry the wall of the capsule dries and is torn open by the snapping of the ring, the teeth contract and stand erect, and the spores fall out and are scattered. Tell the children this story, comparing the tiny moss capsule with some of the dry fruits they already know, e g Snapdragon, Poppy, Violet.

Use a model to illustrate this description step by step. It can be made by enlarging to scale the pattern shown, making the columella about 6 in. long. A knitting needle will serve as the stalk, the columella can be cut out in paper, wrapped round it and tied top and bottom, making several vertical cuts at each end to facilitate tying Spores can be indicated by dots on the paper. The capsule should be cut out, gummed edge to edge to make a cylinder, and tied on in the same way. The teeth should be bent inwards. The lid can be pinned in position with midget pins, and the cap poised on the end Put a little rice, tea, mustard seed, or other small grains into the cavity to represent the ripe, fallen spores.

Begin by describing the outer wall of the capsule with its cap. Then remove the cap and let the children see the lid in position: indicate the weak ring and describe how the lid breaks away. Unpin it and show the model so that the children can see the inturned teeth Then straighten them and swing the capsule backwards and forwards as it might be blown by the wind, when you will find the spores will be swung far and wide to the great surprise and delight of the children. Complete the explanation by telling them what these grains represent.

II. The children may now make a labelled sketch of a single moss branch, showing the stem, leaves, rhizoids and capsule. This is best drawn considerably enlarged.

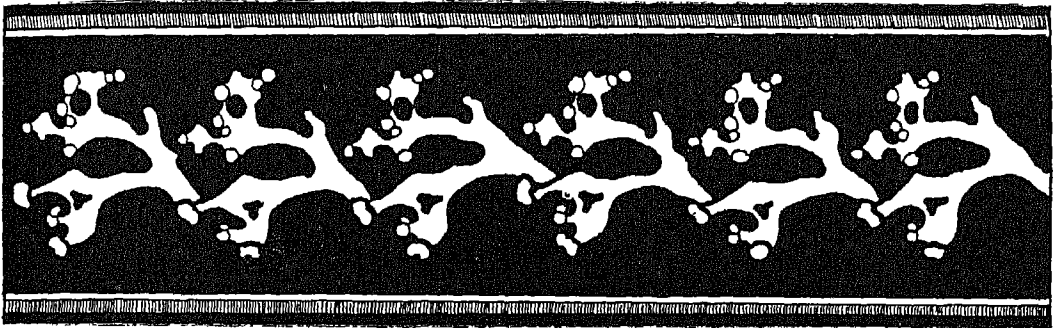
III. Now draw attention to other methods of growth. Show the children one of the prostrate or trailing mosses, in which growth is continued by repeated branching of the main stem pressed flat against the ground, whereas in the erect kinds each branch as it forms turns upwards.

Contrast the foliage of mosses from dry and damp situations, and notice that in the first case, not only are the leaves smaller and narrower than in the second, but usually they are more crowded on the stems, overlapping and so protecting their surfaces from the dry air. The stems, too, are very closely packed, serving the same purpose.

IV. Now ask the question, "How does a tiny spore grow into a moss plant?" From their memory of toadstools and puffballs the children may suggest that a little thread first grows. This is actually the case, only the thread is green, not white. This green thread branches and forms a network of threads, from which tiny buds grow which ultimately form the moss plant. As these stems unfold, they form branches in their turn and so establish the patch. These threads are not difficult to find on rather damp paths and spaces where mosses can be seen, but it is well not to be too certain you have found them unless with a hand lens you can see the tiny moss buds beginning to form, as they closely resemble certain green *algae*. Suggest that the children shall

look for these threads, and if possible, cut out a clod on which you find them, and place it on the Nature Table.

V. Draw attention to the fact that mosses are often the first, or nearly the first plants, to grow on bare soil or stone They therefore act as pioneers, for when they die down they leave a little leaf mould behind, on which the seeds of small grasses and annuals and the spores of small ferns, may lodge, and so in time vegetation is established. If there is an old wall, disused footpath or other bare patch of ground near the school, this can be verified, and a study made of the gradual colonisation which is going on. If this is undertaken, it would necessitate several visits, and accurate counts of plants to the square yard, before a conclusion of any value could be drawn.

XIII. LICHENS

LICHENS (pronounced Li-kens) are very lowly plants which have solved their problem of obtaining food in a curious way They have formed a partnership in which one member, consisting of many small separate green cells, provides food material obtained from water and air (the carbohydrate food), while the other is a fungus, consisting of branching white threads, which are able to take up water, inorganic mineral salts and some organic food from the substratum upon which the plant grows This mutual arrangement enables the plants to flourish in situations in which otherwise life would be impossible They grow at great altitudes and high latitudes exposed to extremes of cold and heat, wet and drought, as well as being widely distributed in temperate climates. They are most numerous, however, in rocky and mountainous country, whether by the sea coast or inland, and they are rare or absent in the neighbourhood of towns, where it is thought that the smoke and chemical impurities injure them. The branching threads of the fungus enclose the green cells, making a dense, feltlike mass called a *thallus* which forms plates or ribbons rooted by fibrous hyphae to rocks, walls or tree trunks

There are two aspects of the life of lichens which may make an appeal to children. One is their action as pioneers, which establish themselves in bare, waste places, dying down and forming a thin crust of soil or humus on which tiny mosses and other small plants can grow. They are even earlier colonists than the mosses. As in the case of the

mosses, a little of their work may be seen by studying the progressive vegetation of an old wall The action of the hyphae is to make the mortar and brick or stone crumble by extracting from it mineral salts. The lichens are thus responsible for some part of the weathering of the wall.

Children are generally interested to hear that the manna on which the Israelites are said to have fed in the wilderness, is supposed to have been a cream-coloured, foamy lichen which grows in the rocky mountainous places of Asia, from Algiers to Tartary. It is sometimes carried by high winds and drifted miles away to be dropped in the desert. Another lichen about which something is generally known is the Reindeer Moss, which grows in grey, frosty-looking branched tufts several inches high, and clothes great areas of the Tundra. This is found on British heath land both north and south, in damp positions sheltered by the heather The similar Iceland Moss is steeped for some hours in water and then boiled to make a jelly which can be used as food

The lichens are all dry-looking plants, with a thallus having no distinction into leaves and stems. Some of them are bright brownish-yellow and orange, others grey or greyish-green, white or black Three forms of thallus can be distinguished, but they merge into one another.

(1) *Crustose*, or encrusting forms, looking merely like stains on a wall or roof, or perhaps thrown into fine, radiating striations These bear tiny saucerlike bodies which contain a kind of spore A common form on walls and tree trunks is the *Grey Wall Lichen* (Lecanora subfusca) with a greyish, white surface, granular, and crowded with tiny discs which are brown with a different coloured margin. Closely allied and equally common is the *Yellow Wall Lichen* (Lecanora murorum) with a round or nearly round compact thallus with narrow lobes, and the discs crowded at the centre a darker brown.

(2) *Foliose*, or with leafy thallus, that is, flat and lobed but not adherent. Held down only by fibres at intervals, so that it can be easily detached. The very common "tree lichen," *the Shield-edge Lichen* (Parmelia physodes), is an example, with a greenish, white thallus, made up of overlapping lobes, with the edges curved back showing the deep brown under surface. Many of the free edges are thickened and covered with small granules, in reality another form of spore. These can break away and be carried to some distance by wind or rain. Another example is the *Dog-tooth Lichen* (Peltigera canina) found growing on the ground amongst a tangle of grasses, brambles and fallen leaves on the edges of woodland paths or clearings, or on the tops of old walls, where the light can reach it. This curious lichen would remind an observer seeing it for the first time of a dry sea-weed. The branching, very dark green thallus is ½ in broad, and may extend for 5 or 6 in in one patch. It curls up a little, showing the greyish white under side covered with stiff curved fibres. At the tip of the thallus are thick, hard chestnut-brown patches, perhaps ½ in. long, oval in shape, giving it its name of Dog-tooth or Toe-nail Lichen. These are the spore-bearing discs. Yet a third common foliose lichen is the *Yellow Crottle* or *Yellow Wall Moss* (Physcia parietina) forming vivid yellow or orange roundish patches on roofs and walls.

(3) *Fruticose* or Tufted Lichens. In these the thallus is rooted at the base, but grows out at right angles from the substratum, or hangs down, in thick tufts; some kinds are short, others several inches long The *Beard Moss* (Usnea barbata) is common in the north of England, and other forms are found on trees in the south, forming grey fringes along old branches, e g on old Apple trees and Sycamores, or on palings. They are to be looked for especially (as indeed are all lichens) on the sides exposed to rainy winds. A familiar tufted lichen is the *Cup Moss*

(Cladonia), bearing its spores in erect, stalked chalices, dotted with grey or red, perhaps ½ in. high. This is commonest in heathy districts.

THE LESSON

Aim.—To realise that the lichens are plants, and to learn through simple observations and narrative something of their nature and importance.

Material.—Examples of any common lichens, showing differences in colour and form, and the spore-bearing bodies

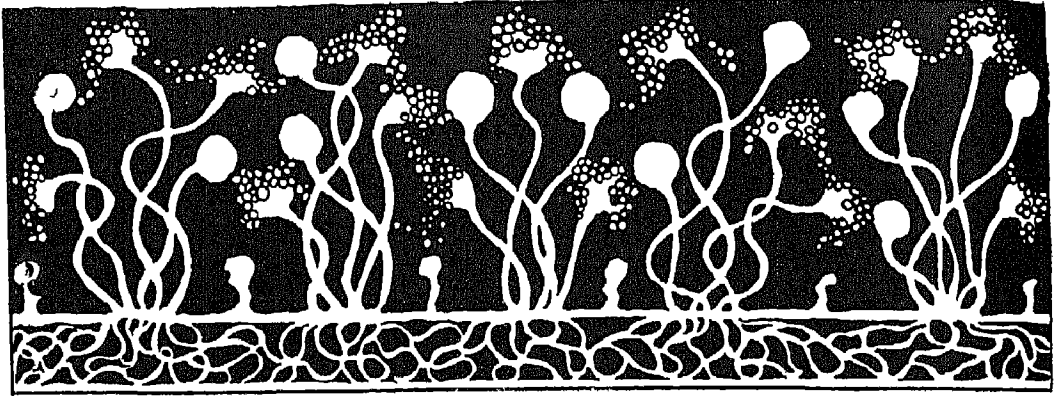
Introduction.—This is not a group of plants which lends itself at this stage to any formal treatment, and should not be included if the children cannot see the plants growing on walls, roofs or trees in the neighbourhood. Draw attention to the plants incidentally when out with the children, and give the name of the group Then collect samples to show them, and put them on the Nature Table beforehand, with their popular descriptive names and any information which can be briefly added, e g "a tufted lichen," "a crustose (encrusting) lichen," "note the discs bearing spores" Give the children some opportunity of trying to draw and paint the bright patches of colour, showing the lobes of the thallus or shape of the whole crust.

I. In order to bring together all the information it is possible to obtain, show the various examples in turn to the class and ask for the names, putting them on the blackboard Then notice the form in each case, and ask for words which might describe it. Write the names Crustose, Leaflike and Tufted (or Foliose and Fruticose if preferred) but use also any apt names the children may invent, and group the lichens together in their appropriate section Then explain how the plant is formed, and that the discs and granular powder form two kinds of spores.

II. Describe to the children the life of the lichens as given above, their distribution, their work as pioneers, their use as food for reindeer and to a slight extent to men. They are also used for making dyes, various forms giving deep violet blue and purple dyes. Litmus, which reacts to acid by turning red and to alkalines by turning blue, is obtained from some of the lichens. This could easily be shown. Most of these dyes are rather transitory and are chiefly used for deepening other blues. They will dye silk and wool, but not cotton.

III. If the children in their handwork lessons are making any experiments in spinning and weaving, it is worth while to try to make use of lichens amongst other natural materials for dyes The Yellow Wall Lichen (Lecanora) is one of those used It should be steeped for some time, then boiled with an alkaline, and a mordant (alum) must be used. The children might also attempt to make jelly if the Iceland Moss is available, steeping it over night, then boiling it, adding milk or fruit juice. It is insipid in itself, and really serves the purpose of gelatine.

The pamphlet on common lichens by Mr. Robert Paulson, published by the Nature Study Union, is exceedingly useful to the teacher who is trying to identify some common forms in his locality.

XIV. MOULDS AND MILDEWS

THE minute plants commonly known as moulds and mildews belong to the group of fungi. An extension of the idea of what we mean by fungi can be made by growing and examining some of the moulds, finding out something of the conditions under which they flourish, and then telling the children something about their importance as the cause of diseases, especially to plants.

THE LESSON

Aim.—

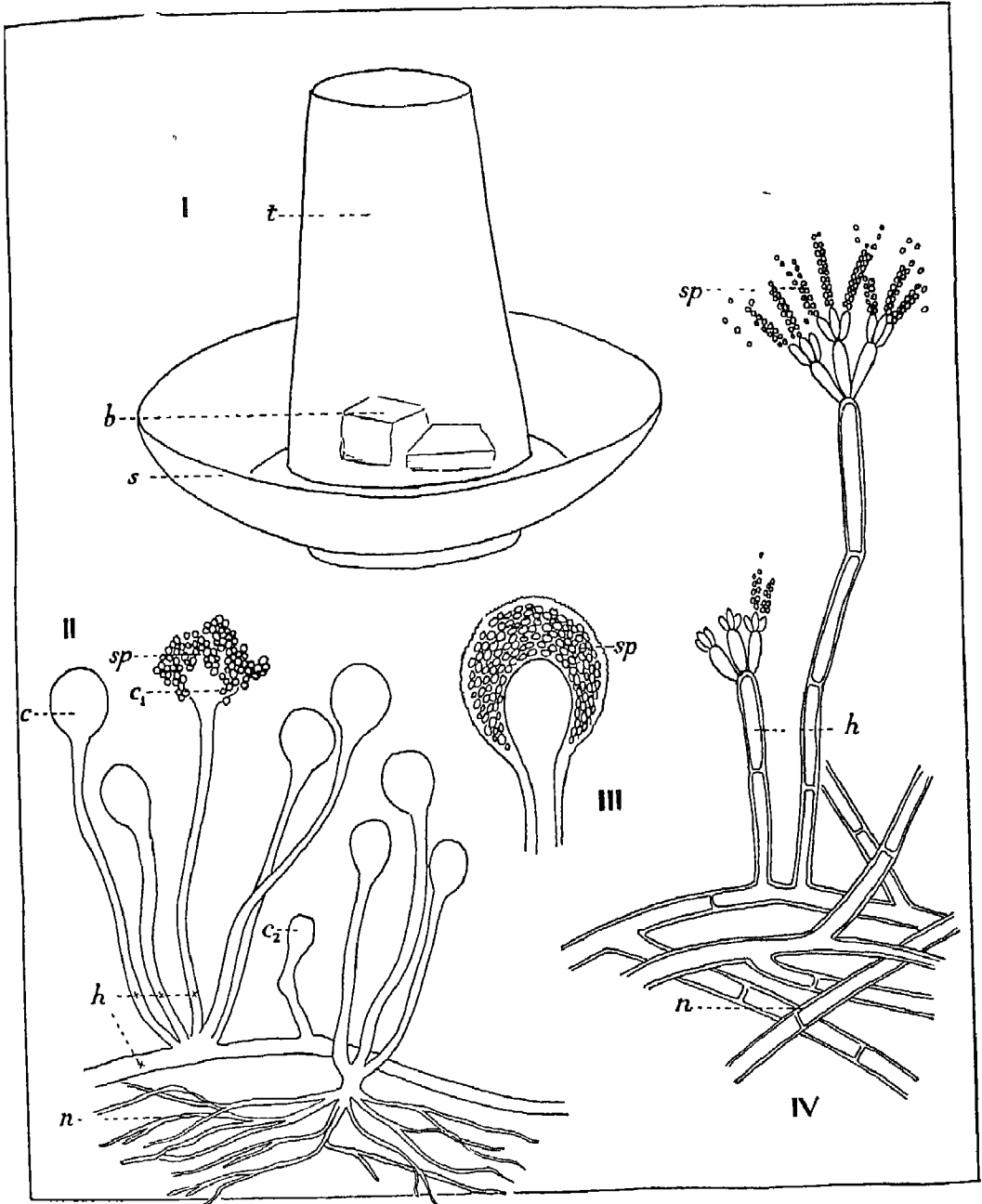
(1) To grow moulds

(2) To learn something of their life, and importance.

Material.—Saucers and tumblers in which moulds can be grown, some bread, home-made and bought jam, a few prunes, plums or grapes, a little green cheese, a cut lemon

Introduction.—Ask the children what happens to stale bread left in a damp place or accidentally left in the bread pan for some time. What happens to their mother's jam if she does not keep it covered, or does not quite fill the jar and so lets air get to it? They will probably say that it goes mouldy. Ask what they mean. Perhaps they will say it becomes covered with white fur, or fluff. Tell them that this mould is really a kind of fungus which feeds on the jam or bread; it is a little plant.

I. Suggest that the class shall try to grow some moulds and find out what conditions suit them best. Show them the various substances to be used and make a list of them. A nutrient jelly may be made with prunes or grapes by soaking for some hours and boiling, then straining and adding sugar to the juice, and boiling for a little while till the jelly will set.

Ask the children what conditions they would like to try. Remembering their seedlings, they will probably think of hot and cold, dry and moist, dark and light situations. Set up two sets of each material in saucers, under each of these conditions, covering one with a tumbler and leaving the other exposed. The tumbler will affect the conditions in two ways,—it will help to preserve a moist atmosphere, and to limit the supply of air (oxygen) Note all the results day by day. It will be noticed that these two conditions both help a luxuriant growth,

MOULDS, AND HOW TO GROW THEM

I Diagram showing how to grow mould *t*, tumbler, *b*, damp bread, *s*, saucer
PIN MOULD (Mucor) II *h*, hyphae, *c*, capsule, c_1, capsule dehiscing, c_2, hyphæ beginning to form a capsule, *sp*, spores, *n*, network of threads which are embedded in host III Head of capsule before dehiscing *sp*, spores
BLUE MOULD (Penicillium) IV *sp*, chains of spores, *h*, spore-bearing hyphae, *n*, network of threads embedded in food substance

consequently, if you do *not* want food to go mouldy it should be kept under dry, fresh conditions Another point of interest is that on a pot of jam the skin of mould which forms does not go very deep. This is because in most cases the hyphae cannot penetrate where there is no oxygen Though a limited supply of air seems to encourage growth, yet moulds must have some oxygen. Such a skin, stripped off a pot of jam, is the best example of a mycelium that can be shown to children.

Some years ago it was noticed that moulds would flourish on home-made jam but not on bought jam. This might be either because the home-made jam was moister, or because preservatives or glucose were used in the bought jam. It would be interesting to try this experiment again now that no preservatives are permitted by law

The prune jelly is usually a very good medium, so is a lemon. Show the children the cheese on which a special mould is allowed to grow to give it its flavour (Roquefort or Gorgonzola) This is quite different from the bitter taste given to an ordinary white cheese by the moulds which attack it.

II. A week or so later, bring all the material together again and record the results in tabular form on the blackboard. It will usually be found that a certain amount of warmth is necessary, as well as food, water and a suitable supply of air Summarise the requirements.

Very often a series of moulds will appear in succession The medium may become covered at first with a fine white fur, which produces little heads at the tips, at first colourless, then dark. This is probably the *Pin Mould* (Mucor) After a few days this beautiful growth collapses; this means that the tiny heads, which are really spore capsules borne on long stalks, have burst and shed their spores It will be followed possibly by a blue-green, short, compact mould, a *Blue Mould* (Penicillium perhaps) If this could be seen under a microscope, it would be found that each tiny thread breaks up into a chain of spores like a chain of beads, which break away in twos and threes. In each case, before spores are produced, a network of threads has penetrated the food material and taken nourishment from it

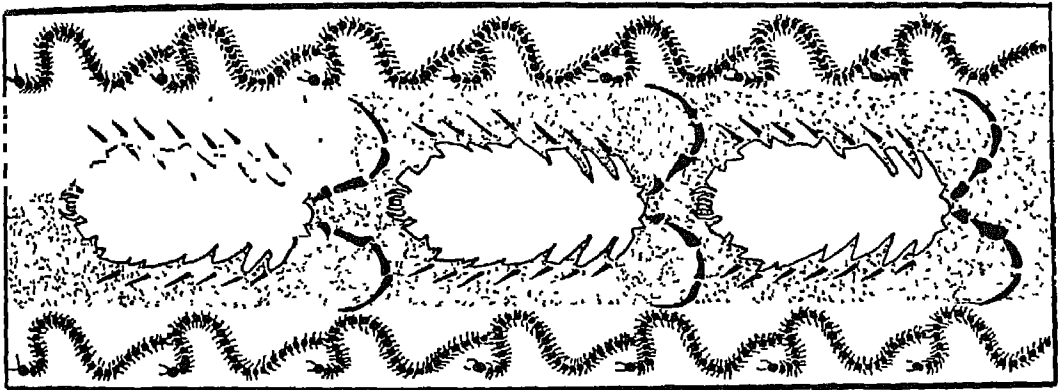
Yet a third common mould, often developing on grapes, is a dingy brownish grey one with long threads (Botrytus). On lemons the blue-green moulds are very common, often followed by the Pin Mould. For the children's purpose it is enough to name these moulds by their colour

Now the question arises, how do the moulds get there? They form thousands of minute spores, so light that they can be carried in the air on the stillest day, and so small that it is impossible to see them. These settle everywhere, and so soon as they can find suitable conditions, they germinate and begin to grow.

III. Further work will have to be put off till the summer, if these lessons take place in the winter (a good time, because material for experimental work is scarce). The teacher might collect, and encourage the children to collect, any examples of moulds and mildews found occurring on plants Generally speaking, the name mildew is applied to the very light, filmlike forms, such as those occurring on rose leaves. "Silver leaf" on plums is common. A furry white growth can commonly be found on the stems of Shepherd's Purse (Perenospora). These examples will serve to draw the children's attention to the possible danger of fungi They do not attack animals nearly so much as plants, but if an aquarium is not kept perfectly fresh, especially if either decaying food such as "ants' eggs," or dead animals are allowed to remain in the water, a white mould (Saprolegnia) may attack some of the animals, particularly Goldfish or Water Beetles, and spread from one to another The mycelium spreads inside the body of the animal, especially attacking the gills and fins of fishes, and usually kills them It is very difficult to get rid of, if once it appears, and the only thing to do is to empty the aquarium

and disinfect it with a solution of copper sulphate, strong brine, or very soapy water New weed must be obtained, the sand washed in strong disinfectant and then in many waters until no trace of the mould is left. Any animals which were in the tank must be quarantined until it is certain that they are not infected (See article on Goldfish for further treatment) It is easy to cultivate this fungus for observation by letting a few "ants' eggs" stand in water for several days.

It is possible that some of the children may have suffered from, or heard of, the condition of Ringworm. This is caused by a small fungus which penetrates the scalp and spreads below the surface of the skin, so that until X-ray treatment was applied, it was almost impossible to eradicate it. The spores form on the surface and are easily spread by contact, so that brushes and combs, hats and towels, can infect other children.

XV. ANIMAL LIFE IN THE SOIL

If gardening operations are begun in the autumn, while the ground is being dug and cleared, and perennials lifted and divided, many forms of animal life are sure to be found, some active, some in a state of quiescence for the winter, some adult forms and others immature. Many of these can be kept under observation if simple apparatus is devised The essential conditions generally are that they shall be kept damp, and given sufficient air. In a loamy soil they will probably find their own food if any is needed at this time. Some suggestions are given below as to the kind of animals which may be found and the methods of keeping them under observation. Earthworms are dealt with in a separate chapter, as they offer a great many points for study.

INSECTS—BEETLES (COLEOPTERA)

The Tiger Beetles

Pretty, brightly coloured beetles with a rectangular body and slender legs, each ending in two distinct claws. One common species, the Field Tiger Beetle, is bright green spotted with yellow and white The eyes are large and prominent. They are carnivorous, excellent runners and fly well.

They feed on grubs of other insects, many of which are harmful to plants. The whitish larvae live in tunnels in the ground, waiting for their prey. They have a flat, large head, the second thoracic joint is horny, and the ninth abdominal segment is provided with two curved hooks on the back. They are about 1 in. long when full grown and ready to pupate, and shaped like a figure 3 with the arms cut short. The feelers are simple, straight and finely jointed.

The Ground Beetles

These are carnivorous beetles which have almost completely lost the power of flight. They have very strong legs. They are found running about on the surface amongst grass or in neglected ground They have simple feelers. Many of them are also brightly coloured, but they are stronger and heavier looking, and mostly larger than the Tiger Beetles During the day they often hide under stones, feeding at night.

The Devil's Coach Horse or Cocktail Beetle

This might not be recognised as a beetle at first sight. It is slender, about 1 in. long, dull sooty black in colour, and runs along with its abdomen curved upward and its large jaws (mandibles) extended It has a pair of very short, horny wing cases. It is also carnivorous. Its larva lives underground.

The Skipjack Beetles or Click Beetles

Flat, oval, rather slender beetles whose peculiarity is that if they are placed on their backs, they press the head and tip of the abdomen against the ground, so that the body is slightly hollowed underneath, and then suddenly spring into the air and alight the right side up This movement is due to the force gained when a spine on the thorax, pointing backwards, is suddenly pressed backwards over a resisting ridge and clicked into a groove. For a detailed description see Miss Lulham's *Introduction to Zoology*. *Wireworms* are the larvae of these beetles. They feed on the roots of plants and do a great deal of harm. They are long, slender and wormlike; a pale straw colour with a small dark brown head On close examination it will be seen that on the first three segments behind the head they have the typical three pairs of legs of an insect.

The Cockchafer

The imago or adult beetle lives amongst trees, ravaging the leaves. It is a nut-brown, broadly-built insect about the size of a large bumble-bee, characterised by short feelers spread out in a fan made up of a number of narrow plates or lamellae (seven in male, six in female), comblike in effect. Members of this group of beetles are therefore known as *Lamellicorns* (corn=horn). The larva is a fat white grub with a brown head and clearly marked breathing pores on each segment. The gardener frequently finds one curled up in a little chamber which it has excavated in the soil It has developed from one of a group of ten to fifteen eggs laid in the soil in May or June. It feeds chiefly on the roots of plants, so this beetle also is injurious in the garden, while the carnivorous beetles are helpful The larva of the cockchafer remains for two years in the ground, passing into a passive stage, then splitting its skin and emerging as a perfect insect, which spends yet another year in the ground before coming into the light In April or May of the third year these beetles emerge, often in swarms, so that, with their buzzing noise and heavy flight, they may at first sight be taken for a swarm of large bees. They blunder about, attacking lime and other trees and stripping them of their foliage, they live for about six weeks and then lay their eggs and die Their long life underground is an explanation of the fact that in certain localities they may be very numerous during one summer, but may not

be seen again for three years They are known as May Bugs, June Bugs and Bumbledors.

Earwigs (Orthoptera)

These belong to a different group of insects, the group name of which means straight winged. They are related to the crickets, cockroaches and grasshoppers Everyone knows their horny, slim, dark brown bodies with the strongly developed, but apparently harmless pincers on the last segment, nearly straight in the female, larger and more curved in the male They have two pairs of wings, the second pair large and thin, folded under the first, which are quite small If a dead insect is pinned on to a cork mat the beautiful folded wings can easily be spread out and examined. The eggs are laid in grass just below the ground. On one occasion some years ago when a turf was pulled up, a beautiful little shallow basin was disclosed, lined with finely powdered earth. It was about an inch across. Inside it was a mother earwig, with two small, pale replicas of herself running at her heels, and lying in the nest were two eggs like seed pearls. In this case development is direct, for the young stages do not differ structurally or in their mode of life from the adult, and therefore they are not larvae. The males apparently die in the autumn, but the females may live to the next spring, occasionally being found in crevices during the winter. Miss Lulham says they live "blameless lives," doing very little harm to the flowers, whose sweet juices they suck, but living chiefly on decayed vegetation. There is, as far as is known, no record of their entering the human ear, though this is a common superstition, probably the cruel-looking nippers serve to give the insect a bad reputation.

Leatherjackets (Diptera)

These are the larvae of the Crane Fly or Daddy Longlegs The eggs are laid in grass or cornfields, and the larvae spend the whole of their lives feeding on roots and decaying vegetation, so that often large areas are badly infested and crops injured. They grow to about an inch in length, are a greyish earth colour, with a tough, leathery, wrinkled skin rather indistinctly segmented The head is usually withdrawn into the first segment, but it can be pressed gently out and examined With a hand lens two pairs of toothed jaws and a pair of very short feelers can be distinguished. The Leatherjacket breathes by means of two pores on the last segment. The value of this device (frequently found in the larvae of flies) will be realised, when it is remembered that the creature spends its life burrowing in the soil, and the last segment is the only part of the body exposed to a stream of fresh air. These openings (too small to be seen unless a very strong lens is available) are surrounded by several stiff projections and soft, fleshy lobes. The head end with the head indrawn has the shape of a horseshoe.

The imago with its slender, dark grey body, humped thorax and long, thin legs, is known to everyone A pair of slender projections ending in a knob, called the *halteres*, stand out just behind the wings. They are not feelers of any kind, but represent the second pair of wings which has disappeared. The long simple feelers project from the head. The end of the body in the male is thick and blunt, in the female pointed for egg laying (as in many moths)

The eggs are laid in grass, pushed just below the surface and hatched Two broods emerge in one summer, the second hibernating as larvae. When pupation takes place the pupa assumes an upright position, and instead of breathing by terminal breathing pores, it is provided with a pair of little breathing tubes, like tiny horns or ears, projecting from the head (*cf.* the Gnat pupa). By means of spines on the abdomen it works its way up through the ground, projecting these little tubes for a short time before changing into a fly. It is at this stage that infested ground can best be treated by

flooding with water, when the pupae are drowned It is a modern practice, when the greens of a golf course are infested, to cover the whole green with rubber sheets and then flood under the sheets, thus keeping out all air, and so exterminating the larvae. Leatherjackets frequently appear in gardens newly made from pasture fields, which were infested by them.

Millipedes and Centipedes

These creatures are allied to the insects by their jointed structure and method of breathing by means of a system of tubes penetrating the body, with pores at the surface; but they differ from them in having many legs instead of only three pairs. The Millipedes are vegetable feeders, and therefore injurious in gardens. The Centipedes are carnivorous, feeding upon earthworms, slugs and grubs of all kinds, and are therefore, on the whole, serviceable The centipedes have a flat, jointed body, provided with one pair of legs on the sides of each segment; while the millipedes have a more cylindrical, wormlike body, and the legs are branched so that there appear to be two pairs on each segment, nearer the under surface. In the young millipedes the number of legs is incomplete.

One of the commonest centipedes is *Lithobius*, a fierce-looking creature 1 in. to 1½ in. long, dark, glossy brown in colour, with long antennae, almost square segments and strong-looking legs. It is found especially in garden rubbish heaps, or where earthworms congregate. It runs very swiftly. The body has fifteen segments. *Geophilus* is another common centipede—at any rate in the south of England. It is sometimes called a wireworm. It is long, thin and straw coloured, and may have over one hundred pairs of legs.

The commonest millipede, *Julus*, is a glossy black creature with very short segments, about thirty in all. A full-grown one is about 2 in. long. It coils up when disturbed.

Woodlice (Crustacea)

The Woodlice (sourhogs, pill-lice, slaters) belong to a group which are chiefly water dwellers, and are distant relations of the shrimps, lobsters and crabs. They are imperfectly adapted for a land existence, must always keep to damp situations, and breathe by means of gills or thin plates attached to the legs close underneath the body These gills must be kept moist, though there is a rudimentary system of tubes something like those of insects to assist them in breathing. The body is flattened from above, having a broad oval form. It is covered by a series of beautifully-fitting overlapping plates hinged together. There are many distinct kinds. In some species the armour plates can be closed up into a ball or "pill" when touched (the "pill" woodlice). The young, tiny white creatures, are carried attached to the underside of the mother's body.

Spiders

The *Wolf Spiders* are ground dwellers, running about over the soil and hunting for food, stalking their prey stealthily and killing it with a bite of poisonous fangs. The females carry their eggs in a round sac nearly as large as the abdomen; if you detach this sac and leave it on the soil, they will presently run back and look for it, pick it up with their legs, and then attach it to the end of the abdomen once more They are brownish grey spiders with spotted legs, about ¼ in. long. When not hunting they make little silk-lined burrows just beneath the soil, or in the winter find some retreat, so that they are often disturbed by the gardener

Method of Study.—No formal lessons can be indicated here. This is essentially subject matter to be investigated by small groups or individuals, and what is found is largely dependent on chance. Yet it can be one of the most interesting investigations. Attempts

should be made to keep the various creatures alive under natural conditions, and to breed them or watch the stages in their life histories. A good deal can be made out with a hand lens Their methods of movement in particular may be watched and compared, especially the way they make a burrow or move inside it The position they naturally occupy should be noticed Sketches may be made to illustrate such points In addition to the creatures indicated, many other forms of life will doubtless appear from time to time, e.g other fly larvae, eggs of snails and slugs, cocoons of earthworms, possibly hibernating frogs, toads or newts, caterpillars which burrow in soil either for the winter or to pupate.

Two useful forms of "home" are described below; modifications should be thought out as discoveries of the needs of various forms are made. The chief points are firstly, that the "home" shall be easily kept moist without drowning the creatures, and secondly that it shall be easily observed The teacher who finds this subject specially interesting is referred to Mr Hugh Main's ingenious inventions described in his pamphlet on "Subterranea" written for the Nature Study Union.

The first form of "home" is simply a shallow earthenware saucer, containing a little damp soil covered with dead leaves, and a few bits of decaying moist bark to act as hiding places and to keep the soil moist The whole is covered by a glass plate, or a tumbler if the contents are very small. This needs to be raised occasionally, say once or twice a day, to admit air, or the soil will soon be overgrown by moulds. This plan of providing a "home" is suitable for woodlice, millipedes, centipedes, ground beetles and tiger beetles and leatherjackets—substituting small grass tufts for the last Carnivorous animals will need feeding.

The second type of "home" is for the larvae which make vertical burrows, e g beetle larvae and leatherjackets about to pupate. Two slips of glass of any convenient size are put together and packed with soil, then held face to face by elastic bands at the top and bottom. The sides and bottom can be packed with cotton wool These "homes" can be kept moist by dipping into water. A difficulty is that the soil tends to drop after a while and leave spaces, so that the upper part becomes dry, and the whole has to be separated to moisten the soil afresh. This may disturb the larva at a critical stage and some process may be missed. To get over this difficulty, Mr. Main has slips of glass cut to the size of a vertical section of an ordinary tumbler, then they are placed in the tumbler with damp soil surrounding the base If this soil is watered, the soil between the plates (if sufficiently closely packed to start with) is kept evenly moistened and does not slip. The tumbler is then covered with a metal cap or glass plate. He also inserts narrow strips of glass to keep his two plates the requisite distance apart while he is filling the space with soil. This apparatus can be kept in a dark cupboard, or dark paper cones may be slipped over the whole, so that the larva lives and works in peace. The plates of glass should be sufficiently far apart only to allow the animal sufficient room to move up and down, but not enough room to bury itself from sight

XVI. THE EARTHWORM

POINTS FOR THE TEACHER'S CONSIDERATION

THE Earthworm can be readily obtained throughout the winter, when other creatures are scarce or inactive, so that it is a useful study for the early months of the year. Here, again, is an example of an animal which has emerged from life in water incompletely adapted for a land life, and so, like the snail and slug, finds itself dependent upon damp surroundings To secure the necessary conditions it has adopted the habit of burrowing. In so doing, it has incidentally escaped the severity of winter, for it is able to retreat to lower levels beyond the reach of frost. When the cold is severe, several earthworms will hibernate, or become passive for a time, coiled up together, possibly for warmth, in a small round chamber excavated at the bottom of a burrow, but in mild, damp weather they will come near to the surface again and continue their usual activities, so that they cannot be called strictly hibernating animals They breathe through the skin, which must be kept moist. They are lower in the scale of animal life than any creatures yet studied in this course, and also nearer to the probable common ancestor or ancestors of the vertebrate stock.

THE LESSON

A good deal of the work would be informal, and preferably out of doors. It would occupy several periods It would follow the following lines:

(1) Observations out of doors.
(2) Making a "home."
(3) Classroom observations and simple experiments The children might very well work in groups, each group contributing its results and showing any evidence collected.

(First Period)

Aim.—Observations out of doors.

Introduction.—Give the children the subject of study and find out what ideas they have about earthworms, e g where they live and what they feed on Then ask them how they would know that there were earthworms about. Some of them may think of the presence of castings, but they have probably not observed the plugs of stalks and leaves which are characteristic of the

presence of worms (especially in the colder weather) in shrubberies or coppices where plenty of material is available for them. Do not give any information, but say that they are going to look for traces of the presence of earthworms.

Let each group take a small trowel and a vessel into which some examples of plugs and castings can be put Each group may collect also some worms for further examination, or the teacher may think it wiser to do this herself beforehand.

I. In the garden let the children look for castings; lift them and see the hole or holes under them. If the observers are quick, they can very often see the worm retreat suddenly as the soil is removed Then show them a plug. Pull out its contents separately, and notice what has been used, and how many things Notice which way leaves have been drawn in—whether by the apex or the stalk. Stones and seeds, and often sycamore fruits, are used as well. Probably the chief value of the plug is to keep the burrow moist, but it may also keep it warmer If draughts got in, the air would dry the walls of the burrow. Let the children try to follow out one of the burrows by clearing away the soil

Look for the egg capsules and young stages of growth. The egg capsules are usually just below the soil, and will be found in large numbers together with young stages, in damp heaps of decaying leaves or turf. The capsules are a yellow, yellowish green or deep cream colour, varying in size in different species, being about $\frac{1}{18}$ in. to $\frac{1}{12}$ in. long, nearly round, but drawn out into a short point like a little stalk at one end, giving them the appearance of seeds The texture is parchmentlike. The young worms are white, gradually deepening through pale pink or yellowish tones to the colour of the adult. They may be found less than $\frac{1}{2}$ in long.

It is advisable to explore the ground beforehand so as to be able to take the children direct to places where castings, plugged burrows and egg capsules are likely to be found. If possible, contrast different situations for frequency of castings or plugs, and differences in appearance.

It will usually be found that castings are most frequent on lawns where the ground is rolled hard and the worms have to eat their way through the soil, and that plugged burrows are to be found most easily on the soft ground under trees or in shrubberies The materials used are those lying round from the fallen trees, and where a lawn is shaded by trees, leaves and stalks will often be used, though more frequently the mouth of the burrow is covered by castings.

Let each group dig out a clod of earth with a casting in position, undisturbed. This the children can draw and also another with a plug in position. Egg capsules can be collected These can be put on the Nature Table to develop, in a saucer or small dish on damp soil covered with damp dead leaves, which can be lifted for inspection. A glass plate should cover the whole, this can be moved occasionally to let in air

II. On returning to the classroom, the children could make drawings of the castings, plugs, and capsules Then let the children wash out the contents of a plug and spread them out on blotting paper or newspaper. They will be in all stages of decay, and some will show signs of having been sucked or chewed (though there are no tooth marks). It will be possible in many cases to see what leaves were used, and how they were drawn into the burrows

III. This will suggest the experiment of scattering a definite number of selected leaves in a marked area (which could perhaps be enclosed in some way) and noticing which leaves are moved, which found in burrows, how they are dragged in, and whether they show signs of being eaten. It is difficult to be certain on this last point, as the acids in the soil cause decay, but it is said that earthworms pour over fresh leaves a sort of saliva which partially digests them so that they can be used for food

Before scattering a fresh supply of dead leaves, the area chosen must be swept, and all existing plugs removed. The same experiment might be repeated a little later, clearing the ground of everything the worms could use, and then scattering very small stones.

(Second Period)

Aim.—To establish earthworms in a "home" in the classroom.

Material.—For each group, a 2-lb glass jam jar, a flat stone and a stick for pressing the soil down A supply of soil, dead leaves and sand Two earthworms for each jar. Brown or black paper, scissors, and paste or pins.

Introduction.—Explain that it will be easier to watch the activities of earthworms if they are kept in jars of soil, and that if the jar is covered by a sheath of dark brown or black paper they may make their burrows beside the glass, and then, by taking off the sheath, they can be watched.

I. Arrange the soil and dead leaves in a convenient place so that a member of each group can fill the jar or take the leaves without jostling his neighbours Apportion the work in each group so that some children fill the jars, others make the paper sheath, write the label (with date) and paste it on to the jar, and get the earthworms from the teacher's table. It is a good thing to have a large plant pot or box of damp soil, and let the children bring good specimens of earthworms for a day or two beforehand, as from twenty to thirty will be wanted altogether. If preferred, the jars can be brought filled with soil, so that all that remains to do is to make the paper sheath and label it.

II. Before letting any of the worms be put into the jars, refer to the castings which are made in hard soil, and suggest that in order to get these, the soil shall be rammed tightly down Then make one "home" with alternate layers of sand and soil, so that the children can see how, by the falling in of the walls of the burrows, the soil of different levels is mixed. They will understand that the earthworm acts as a little gardener, turning over the surface soil and bringing up the deeper layers, while the soil from the top, rich in leaf mould, falls to the bottom of the burrows If a deep jar or oblong accumulator tank can be procured, so that several alternating layers can be made, this can be shown very well This might either be carried out by children in front of the whole class, or by one group with the teacher, when it can be shown to the rest.

III. Let each group now put the worms into the jars and watch to see exactly what they do. Let them make sketches to show how the worm begins to burrow, pressing the pointed head into a little crevice and then bringing up the body behind it (the thickening of all the rings just behind the head can be plainly seen) and pushing with all its might, so that it uses its head and body like a gimlet, and bores a hole with the pointed end. Time the worm and notice how long it takes to bury itself completely. (It may take forty minutes to one hour, so that it may not be possible to watch all the time On the other hand, some will disappear in a few minutes)

IV. Keep the jars under observation, and make sketches of them at any time to show the position of burrows near the glass, and the worms inside them, or to show any new occurrence, for instance, an earthworm turning round in its burrow to bring its head uppermost. Note that they are usually found in this position, with the head just below the ground, yet they burrow head first. The body is so elastic that it can be flattened against the sides of the burrow while the front half passes the back.

PLATE XV

I Earthworm in movement, showing the way the front segments are drawn up and the hinder ones elongated as it pulls itself forward

II Earthworm beginning to burrow—arching the head end and forcing it into the small hole made, to enlarge it.

III Earthworm rearing up out of burrow in search of food.

IV Diagram of earthworm, showing the arrangement of the four double rows of setae—view from the side

V. Two segments seen from below

SUBSEQUENT PERIODS

The rest of the work is best treated quite informally, each group taking up suggestions as the appropriate time occurs, the teacher keeping in touch with their work and suggesting developments A period might be given at the end of the series to group *lecturettes* in which the leader of each group gives an account of what has been done, and the results observed. Additional plant pots and jars may be needed, and the children may be encouraged to keep worms under observation at home, and especially to make investigations after dark and in the early morning.

N.B. Keep all jars covered to prevent evaporation.

SUGGESTIONS FOR EXPERIMENTS

1. Activities in the soil

Scatter tiny bits of fresh leaves, dead leaves, apple, potato, onion, carrot or other fresh vegetables, on the surface of the soil in the jar, and note whether any are touched, removed or dragged into the burrows A diagram may be made of the way the bits are disposed, and other diagrams to show any change (a letter or numeral being used to mark each bit). Bits of cabbage leaf or dead leaves of one kind may be cut out in different shapes, e g. square, round, long and narrow oblong, long, narrow triangle and equilateral triangle. The same may be done in paper, to see whether the earthworms discriminate in the shapes they use to plug burrows. (See Darwin's *Vegetable Mould and Earthworms*, which the teacher will find full of interest and most suggestive)

Try to go out after dark on a damp, fairly warm day when there is no frost, and see the earthworms out of their burrows, holding on by the tip of the hind end, and waving the body over the surface of the ground in search of food.

2. Senses

Test the earthworms by using the same devices as suggested for snails and caterpillars.

Light.—They are very sensitive to a light flashed upon them suddenly in a dark room or after dark, and in general, seek a dark place so soon as they are exposed to light. The head end seems most sensitive There are no eyes and therefore it cannot *see*, i.e. form images.

Contact.—They are very sensitive to contact, especially in the head region. Strictly speaking, there is no *head*, but the worm tends to move in one direction, and this end is pointed, more sensitive, and contains the rudimentary brain and the mouth. (Note that the development of a head is closely connected with feeding, the need for jaws, concentrated sense organs in the region of the jaws, to see, smell and taste the food, and the control of the senses and movements by a brain.)

Heat.—The whole skin is sensitive to heat and the worm responds by moving away from the source of it.

Smell.—Shows marked *likes* and *dislikes*, amongst strong-smelling substances Responds positively to alcohol! Probably finds its food by smell, which seems to be located in the tip or *prostomium*

Taste.—Not possible to investigate exactly, as it is so closely associated with smell.

Hearing and Vibration.—It is important to make a distinction here, and to be sure that in testing hearing no vibrations are being carried along a desk or table. The worms should be held away from the table in a saucer to test hearing by tapping, and the contrast noted when they are placed on the table and can feel the vibrations There is no sense of hearing, but quick response to vibration, which is really a form of touch response.

Some people may like to try the following experiment:

Let a number of children (six to ten) each have a worm in a wet saucer. These should have been taken freshly out of the ground and washed, and should not be fatigued by previous experiments

Hold them close to a piano, but away from it. Settle down and play a simple strongly marked rhythm (a march or old-fashioned waltz). Then place the saucers on top of the piano and play again. In both cases play for two or three minutes. In the first case, though the worms may be active, any movements they make will be erratic and purposeless, but often they remain inert In the second case, when the vibrations of the piano reach the worms, a large proportion of them will elongate the front of the body and hang stiffly over the side Then they will begin to sway slowly, and after a little time nearly all the worms catch the rhythm and sway from side to side in exact time to it, rather as one imagines snakes respond to a snake charmer. The response is not, however, always to be obtained, or always so marked and exact, and sometimes cannot be distinguished as having any definite relation to the music, but might simply be due to the disturbance of their conditions It seems to depend on their physiological condition, and I think especially upon the length of time they have been out of the soil Sometimes, if they have been allowed to crawl about aimlessly on a damp surface, but without being subjected to experiments, a good response will be obtained. This experiment was first suggested to me by Miss M. Carson.

3. Movement

Watch the earthworm moving over damp soil or on a wet saucer or glass plate Notice that it feels its way with its head, then seems to be able to grip the surface in some way, for it becomes stationary just behind the head, and pulls up the body, which becomes very thick, while farther back it is elongated and narrow. Then the hind part is pulled up and the front part stretched again.

Place some earthworms on rough brown paper It is best for everyone to do this at once, to ensure silence. Listen in perfect silence. A faint scratching noise can be heard on the paper. Explain that on every ring of the body, except the first three and the last, there are four pairs of minute curved bristles embedded in the skin with their points projecting. These are used as feet. They are called *setae* or *chaetae* (sing.: *seta, chaeta*) The earthworm digs them into the ground, fixes itself, and is then able to draw the body up. It has two layers of muscles under its skin, one layer going round in rings, which can be contracted to make the body longer, and a second layer going lengthwise, which can contract and so shorten the body, and the setae and muscles together enable it to move. The division of the body into rings and segments makes for free movement.

The setae are also used to attach it to the sides of the burrow, and are particularly useful to it when a thrush or other bird tries to pull it out. Unless the bird is very quick, the worm hooks itself in with the forward curved setae, and will allow itself to be torn in two before it will give way. (In many cases the head end will then be regenerated.)

4. Structural points to notice

In addition to the points already referred to, notice the delicacy and dampness of the skin, kept moist by a secretion of thin slime, which is necessary for breathing.

Note the *saddle*, or *clitellum*, which makes the cocoon in which the eggs are laid This secretes a layer of a thick slimy nature which hardens on exposure to air The earthworm wriggles the body out of the slimy ring, which closes as it is slipped off, making the roundish cocoon (N B. The saddle itself does not slip off, as people sometimes seem to think.)

Along the back a blood vessel can be seen just under the skin, containing red blood. (The red colouring matter in blood is a help in breathing, for it takes up oxygen readily. In the soil the amount of air, and therefore oxygen, is limited, so that this is an important provision.)

For a very full account of the activities of earthworms see Darwin's book to which reference has already been made. Extracts could be read to the children, especially in relation to the distribution of earthworms in various soils, and their activities in the ground

XVII. EXPERIMENTS WITH SOIL

Aim.—To find out some of the properties of soil which affect plant and animal life in it.

Material.—Samples of air-dried soil from a well-cultivated garden, and if possible from one or two situations in which it will be poorer in humus. Some sand and clay. Chalk if it occurs locally. Apparatus indicated as required.

Introduction.—Speak of the importance of the soil to many plants and animals, and ask what conditions it provides for them. Probably the children will suggest that it gives water to plants, that it gives shelter and food and the necessary dampness to the animals they know, and that it holds the plants upright. Suggest that they shall try to find out how soil is made up and which of its characters could be important to living things.

I. To find out how soil is made up

Remind the children that, in speaking of lichens and mosses, it was said that they died down and made a little plant mould, called *leaf mould* or *humus*. Ask in what other way leaf mould could be added to the soil. By falling leaves in the autumn. By the dying down of plants in gardens, fields and hedges. The plants decay and the remains are at last added to the soil. So, too, are the dead bodies and the waste substances of animals Ask if the children can think of any way of finding out whether soil does contain humus Tell them that it has been found that humus is lighter than the rest of the soil, and this has suggested a way in which it can be separated from the rest. Take a little fairly rich garden soil, and shake it up in a tumbler of water, then let everyone watch while it settles. At first the water will be very muddy; presently only cloudy, with a fine sediment in it, Pass it round for the children to look at, holding it very steadily. They will notice that most of the soil is at the bottom, that some fine soil is still floating in the water, and that on the surface there are numerous little irregular bits of leaf, fibres of roots, and pieces of broken stem This is the humus By slipping a small piece of blotting paper or filter paper beneath the surface, it is possible to skim this off and let it dry on the paper.

Let several children repeat this experiment with the same and other soils, measuring out an equal quantity of each, and collecting the humus, if any A record might be made as follows:

(*a*) *To see whether there is any humus in a certain soil*
(*b*) *What we did.*
(*c*) *Result*—or what happened.
(*d*) *Conclusion*—or what we reason from the experiment.

This sequence should be discussed with the children so that they understand why

it is chosen. Note that the object of the experiment should always be stated as an *enquiry*, not to *show or prove that something happens*.

Ask what other substances besides humus the children think may be present What makes the bulk of the soil? This is the next enquiry. Let the children try to think of some way of separating what is left Perhaps some of them will remember that there was some fine substance held in the water for a long time Here is the clue. Let us wash and wash the soil and keep all the fine substance we can pour off. How can we collect and examine it? In time perhaps that would sink to the bottom and could be collected But a quicker way would be to drive off the water by heating it and leave the substance behind Old saucepans or any kind of metal vessels that will resist heat can be used for this, tin cans will serve if they can be made perfectly clean In the laboratory a porcelain dish over a sand bath would be used If possible allocate this experiment to be carried out by a second group Failing any appliances, the teacher will have to conduct these experiments while the children look on; but it is much better if the children can take part. Any small oil stove can be used if a gas ring is not available This experiment takes time and the vessel will have to be left heating till the water has evaporated. As an alternative method shallow vessels can be used and left in the sun for evaporation.

The same method will be applied to the first sediment. It will be repeatedly washed and the liquid evaporated (either over heat or spread out in the sun) until a graded series of dried samples is obtained. These will be found to consist of fine gravels, coarse sand and fine sand. The finest substance will probably be clay If so, it is a very smooth, non-gritty powder which sticks to the finger. If moistened again and allowed to dry it will crack. It will also be found to shrink into a smaller space as it dries. To test this, fill any small vessel to the brim with wet clay and see what happens as it dries.

We conclude, therefore, that soil consists of humus, clay, sand and gravel If the same tests are applied to purported pure sand, pure chalk and pure clay it can be found out whether they *are* pure

II. To find out how much water the garden soil holds

The children know that a garden needs rain or artificial watering, and that both plants and animals need the water Ask how we could find out how much water soil will hold. By discussion the following points should be brought out

(1) That the soil must be dried or we shall not know whether it already contains some water
(2) That if we pour water on, we must know how much.
(3) That if the soil is in a vessel, so that the vessel holds the water, it is not possible to say when the soil is exactly full.

The third point will probably cause some perplexity. The soil can be air-dried and the water to be poured on measured, but how shall we know that the soil is full? The teacher will probably have to point to a solution. If a funnel is used, the water can pass right through, and we can measure both what goes in and what goes through. It will also be necessary to know how much soil is being used. This can be measured either by weight or volume The simplest way, if only makeshift apparatus is available, is to graduate a straight-sided glass vessel of measured capacity, marking the volumes on the outside with strips of paper, and then use this for all measurements. The bottom of the funnel should be lightly plugged with cotton wool. It will be seen that the water comes through with a rush at first, then much more slowly, and finally only an occasional drop. If we wait too long there will be evaporation So we see that the time element comes in also, and we have to

notice how long we leave the water on the soil before measuring what has come through

The same method can be applied to powdered clay, chalk and sand. Note here how important time is, for water runs through sand very quickly, and through clay and chalk more slowly, though the porous chalk rock, which has not been powdered, drains rapidly.

III. To find out how much air soil will hold

Discuss the need for air in soil Animals most certainly need it to breathe The children do not yet know whether the roots of plants need it, but they may have heard of soil being water logged, and that it is left roughly dug in the winter, or hoed in the summer, to let air get into it. With a little thought they will see that they have already measured the air space, for it must be the same as the water holding capacity.

IV. To see what happens when there is water down below the soil

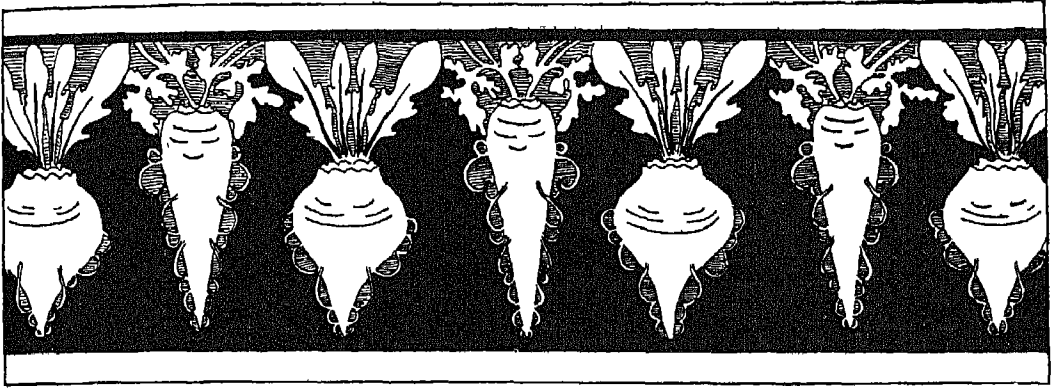
It has probably been noticed in very dry weather that many of the plants look quite strong and vigorous, and do not seem to need watering, while others wilt easily. If possible dig up a plant of each kind and show the difference in the length of roots The deep-rooted plants must be able to reach down to water somewhere. Some of the rain drains away underground and at last reaches springs or rivers, but some of it remains deep in the soil and keeps it damp. Show what a little way you need to dig in the garden in dry weather to come to damp soil. Now suggest that we might see what happens when we place dry soil so that there is water touching it underneath.

A lamp glass may be filled with soil and stood in shallow water The soil should be tightly packed. Gradually the water will be seen to rise in the soil An investigator who carried out this simple experiment fitted a piece of blotting paper on to the top of the soil, the paper became wet when the water reached it and so gave additional evidence. She also tied a piece of filter paper over the bottom to prevent the soil from coming out into the water

This again may, if desired, be used for comparisons, by noting the level to which the water rises at regular intervals. A simple way for children to record such results is to draw a vertical line of the actual height of the soil, and mark on it the height reached by the rising water, writing the time beside it. This is useful as an introduction to graphs later, since it introduces the idea of related factors.

The children will now realise some of the chief physical properties of soil which affect life in it These can be summarised in a final lesson If these simple experiments are carefully carried out they will occupy several periods.

Let a sketch be made of each piece of apparatus when the record of the experiment is made. The sketch should indicate what is happening or has happened

XVIII. EXPERIMENTS WITH PLANTS IN RELATION TO SOIL

THIS work should be carried out, if possible, both in the classroom and in the garden. In the garden the effect on seedlings of pressing down the soil firmly, thus reducing the air space between the particles, may be compared with the effect of a looser surface soil, and later the soil round some seedlings may be hoed while others are left undisturbed. A row of seedlings may be watered while another is left without water, or even protected from receiving rain, if necessary. The effect of shade may also be compared with that of light, both upon the soil, in relation to its dampness, and upon the seedlings

At the same time, seeds may be set in pots in the classroom with the same differences in the conditions The effect of the condition of the soil would in this way be realised.

Another set of experiments might aim at a comparison of the qualities of different kinds of soil. Seeds might be set in sand, clay, pure vegetable mould, dead leaves which have scarcely begun to decay, and an ordinary garden soil. An interesting soil to try is the fine mould of earthworm castings. The results obtained might lead to experiments in the making up of suitable soils by using varying proportions of sand, humus and clay, measured by weight or volume. In this way, without obtaining any very precise results, the children's attention might be directed to the importance of the constitution of soils, because of the varying air and water content and food material.

Although the children are not old enough to appreciate the details of the feeding of plants, they might also try experiments in manuring with animal and plant manures, both in the garden and in pots, either making liquid manures or using the bulk, forking it round the roots of selected plants and comparing results, which often, as the gardener realises, show quite quickly Clumps of perennials such as Peonies or Delphiniums, might be treated differently, records being kept of the exact differences in treatment and the results observed. Healthy plants of vigorous habit, but not of specially good stock, serve this purpose very well. They might, for instance, be given liquid manure made from dung at regular intervals, in one case more frequently than another. Or the effect of using liquid manure once, then plain water several times, might be compared with regular watering with weaker liquid manure and no plain water. The

plants chosen for such experiments should be approximately alike in size, and the number of shoots which will bear flowers should be equalised

Some of the common quick-flowering annuals are useful if these experiments are carried out in the garden, and more interesting to children than the orthodox peas, beans and sunflowers. If several kinds are used, they will find that their needs vary, for instance, some plants require shade, others are happier in dry ground than in damp, others prefer a poor soil and do not need manure. Virginia Stock, Candytuft, Marigold (Calendula), Eschscholtzia, Clarkia, Flax, all give results within the summer term Their whole life history should be watched, and the effect of the particular conditions upon the amount and quality of seed production should be noted as important.

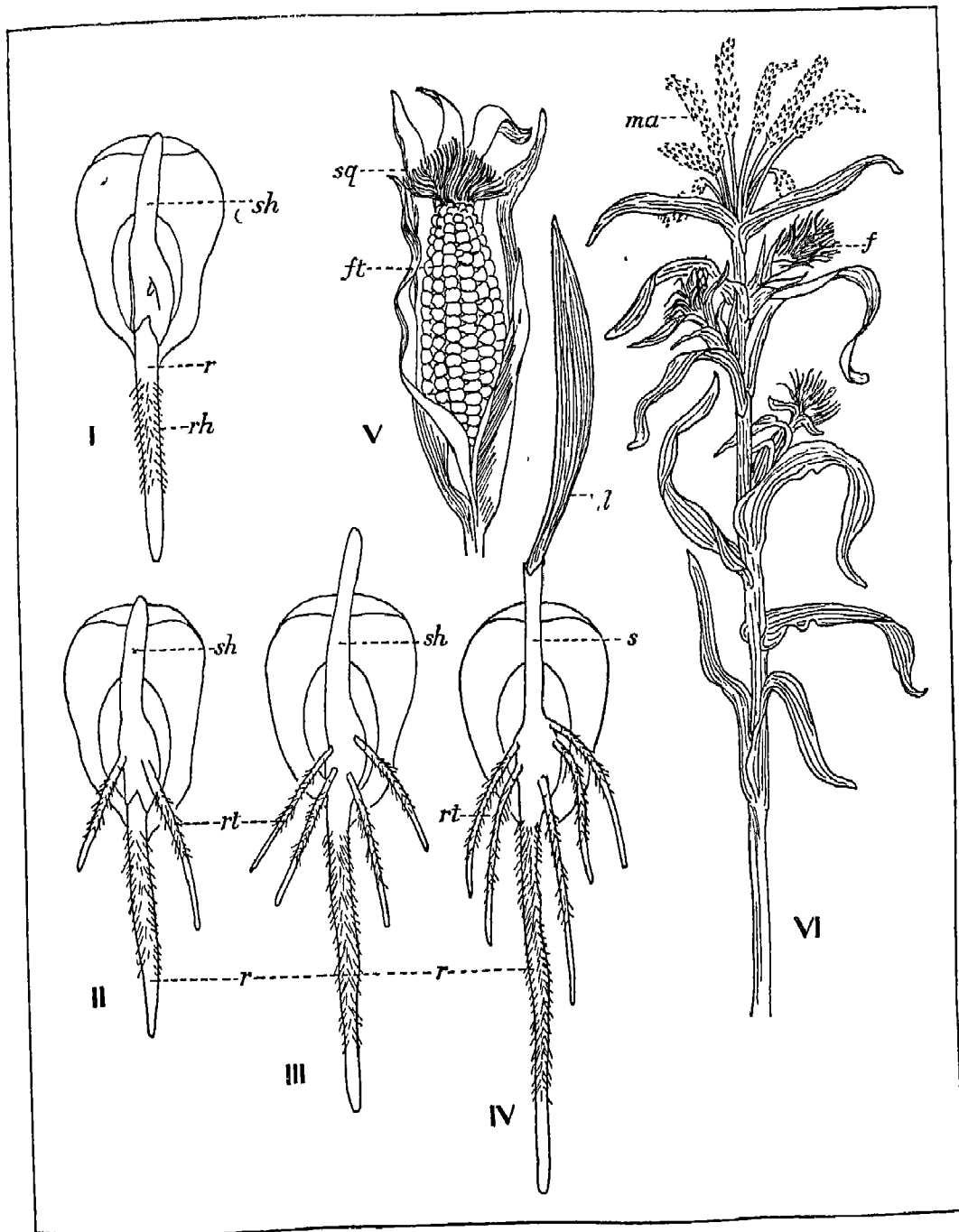
Maize

Maize, which is one of the grasses, is a useful plant for mass comparison, as it germinates quickly and grows rapidly in a mild climate It offers some structural features which are different from those already seen The seeds are in reality fruits, as can be seen by looking at a cob, in which they are fully exposed. The pericarp is, however, so closely attached to the seed coat that they cannot be separated. On removing this, a hard golden mass is found, in which is embedded a white shield-shaped body This is the embryo plant, while the yellow part is the food material or *endosperm* provided for it. In the middle line of the white part a small groove can be seen. Very gently ease apart the edges of this groove with a fine needle. It will be found that pointing towards the place of attachment of the seed, there is a very small white root or *radicle*, while pointing towards the opposite end is a small yellow shoot or *plumule*. They are joined together, and to the white mass, by a broad, cross-shaped bridge, the *hypocotyl* The white part is the single *cotyledon* or embryonic food leaf. It lies in contact with the endosperm, and is able to dissolve the food and draw it through, by means of a skin covering its convex posterior surface If the embryo is carefully dug out with a needle, the whole extent of the cotyledon can be seen In front it grows over and embeds the root and shoot.

If the seed is planted in damp soil, sand, sawdust, fibre or blotting paper, it germinates in a few days, putting out a strong, short radicle The hypocotyl grows outwards and pushes the radicle away from the seed. After a few days the growth of the radicle stops and small branch roots, or *adventitious* roots, begin to grow from its upper part and from the hypocotyl. Spreading out widely they act as stays to support the plant in an upright position, like the guy ropes of a tent. Numerous delicate white root hairs are formed above the tips of the roots.

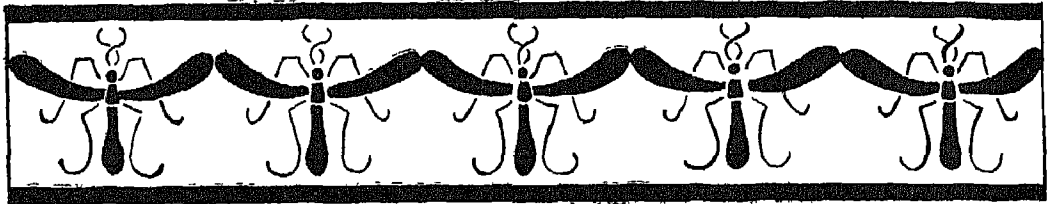
The shoot is a little later in making its way out, but presently begins to grow in length, upwards For quite a long time, until a large number of fine roots have grown and spread widely, the shoot remains unopened. Then at last it will be seen that the tip of the outer white sheath leaf is punctured, and another leaf is coming through This is the first green leaf. It is wrapped round other leaves which unfold one by one as the stem grows They become large and strong, those at the base a foot or more long and as much as 2 in. wide, those clothing the upper part of the stem are broader. Ultimately the stem produces large clusters of flowers, a crown of large stamen-bearing spikes or male flowers, and several axillary clusters of tufted pistillate or female flowers. The long tufted stigmas wave in the air and receive clouds of pollen, which cause the ovules to ripen and the cob to form

One other line of experiment might be tried on the relation between plants and soil, and that is, the growth of some root crop, radishes, turnips or carrots, in light and heavy, damp and dry, richly manured and poor soils. The growth of the foliage should

PLATE XVI

LIFE HISTORY OF MAIZE I, II, III and IV Stages in the germination of maize grain, *sh*, young shoot, *r*, root, *rh*, root hairs, *rt*, rootlets, *fl*, first foliage leaf, *s*, sheath V, "Cob" *sg*, stigmas, *ft*, fruits VI Flowering shoot of maize *f*, female flowers, *ma*, male flowers

be compared, the formation of the swollen food-containing roots compared at intervals, and some conclusions drawn as to the best conditions for them. If it is feasible, watch also the resorption of the root store into the plant as flowers and seeds are produced, by leaving a few specimens to "run to seed."

For most of these experiments in the garden it is best to sow the seed in short drills, as only small quantities are needed for each. Select at most two or three kinds of seed, or the experiment will tend to become diffuse and the results vague. If there is no garden, deep boxes (sugar and margarine boxes) slightly sloped down to a front edge, make excellent frames for plants when filled with soil There is the advantage that odd pieces of glass can readily be fitted together to form a light, and so help to control the conditions of growth.

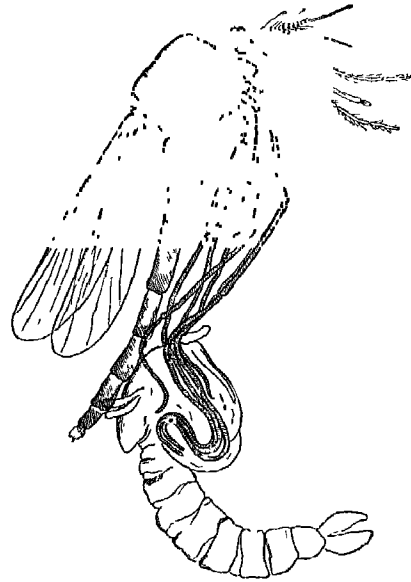
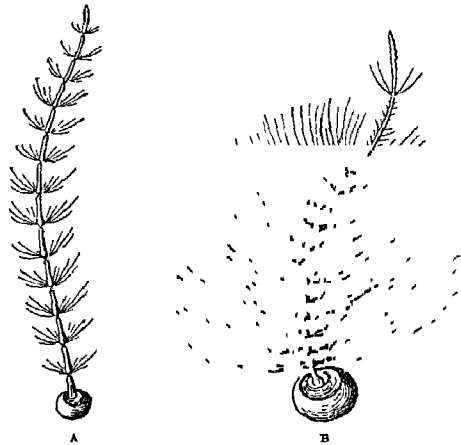
XIX. ANIMALS LIVING IN WATER

FOR continuance of the study of life in water, and the means by which animals are adapted to it, some of the two-winged flies (Diptera) offer some striking and curious material. The methods of study have already been dealt with in some detail earlier in this course. The great thing is to reproduce in miniature as nearly as possible the conditions under which the creatures are found, whether it be in stagnant or flowing water, in the muddy deposit at the bottom, or amongst green weeds. Most of the creatures to be described are small, and therefore it is easier to keep them under observation in small vessels than in large ones It is essentially the kind of study the boy or girl who has become interested will follow for himself, searching in water butts, stagnant roadside pools, cart ruts and ditches, as well as visiting ponds, and keeping his finds in small pots and saucers. A small home-made net is a good appliance, and since many of the animals live on minute organisms in the mud or water, a "soup" should be made for the larger ones to feed on, by concentrating these small creatures in the water taken home A glass bottle may be fitted with a cork through which two holes are bored Through one a funnel is passed into the bottle, through the other a short piece of glass tubing (or metal for that matter) with a bit of fine net tied over the opening If water is collected in a jar containing water fleas and other small creatures, or fine mud, and poured into the funnel, it will run out again by the tube, but the net will act as a grating to keep back all particles, and so the living organisms required will be retained In this way a dense mass of them can quickly be collected into the small space of the bottle without burdening the collector with a great bulk of water to carry home. This method was, I believe, invented by Mr. Furneaux, whose *Life in Ponds and Streams* is full of valuable suggestions and information. It would be a very useful book to add

to the classroom library at this stage. Professor A C. Miall's *Aquatic Insects* is invaluable both for identification purposes and description of the habits and structures of insects Miss Lulham also gives many detailed descriptions in her *Introduction to Zoology*, to which reference has already frequently been made.

A supply of hand lenses is necessary, for children at this age are beginning to be very much interested in details of structure, and can find out a great deal by watching with a lens There is great joy in its revelations

The teacher's function will be chiefly to encourage and stimulate interest, by taking an interest in the creatures brought to school, offering facilities for observation, and helping the finders to identify them, giving incidental information about them, suggesting that records shall be kept giving such facts as where the animals were found, whether they were plentiful, the time of year, attempts to feed them, and further stages in their development The children should be encouraged to think out as carefully as possible the best way of keeping the animals, and to read about them so that they will know what may be required. If a great many small vessels and saucers are needed, the children may be able to devise some kind of tray or rack which can be used for keeping them neatly together, and for carrying them to where they are wanted.

The Common Gnat (Culex)

The Gnat is one of the slender-bodied, two-winged, biting flies known as mosquitoes, which in many cases are dangerous because they can convey in their blood the bacilli of serious fevers In the case of the common Gnat it is the female only that bites, and if she has been visiting dirty, infected places the bite can cause serious irritation and illness The male lives only on the juices of flowers The mature insects are about ½ in. long, and may be distinguished from the very similar Harlequin fly by the way they stand at rest, with the long hind legs raised in the air, curved backwards, whereas in this fly the front legs are raised and pointed forwards The head is small, and provided

Fly of Gnat (Culex) escaping from pupal skin (From Miall)

ANTENNAE OF GNAT. *A*, Male *B*, Female (From Miall)

in the female with long, sharp lancets working inside a tube, capable of both piercing and sucking. This tube can be plainly seen, with the flattened end pressed against the skin,

as the insect bites It is possible that at the same moment a drop of poison is injected.

1 Egg raft of Gnat (*from Réaumur*) 2 Single egg 3 Egg removed from ovary, with bladder-like appendage 4 Showing radiating lines

(*From Miall*)

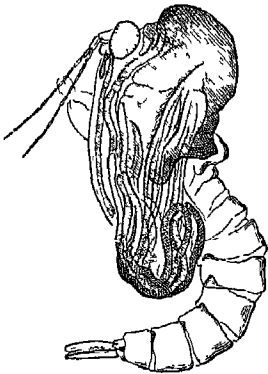
Larva of Gnat (Culex) in side view

(*From Miall*)

The deep booming hum is caused by the vibration of the wings, and the shriller note, like the plucking of tiny strings, by short, stiff projections on the sides of the body. The buzzing attracts the males, which themselves are silent. Their large plumed antennae apparently act as receivers to catch this note.

The eggs, which are long and narrow, and very small, are laid on the surface of water, where they float attached together making a kind of raft, with bubbles of air held between the tips of the eggs At the lower end of each egg a little lid opens to allow the larva to hatch, and it slips into the water As 300 or more eggs are laid by one gnat, it is no wonder that marshy places swarm with them Look in the rain butts for the tiny floating rafts and larvae.

At all stages in their life it is important that there shall be plenty of air, and there is very little in stagnant water. The Gnat larva and pupa therefore obtain oxygen from above the water. The larva, which is a jointed, slim little creature with a greatly swollen thoracic segment, is provided with a long tube at the end of the abdomen, which it pushes through the surface film of the water, where it spreads out a ring of small valves, and suspends itself head downwards while it takes in air. This is a similar device to the one already described in the Water Beetle larva. It will often remain for a long time in this position In addition to this tube, it has another curious projection, provided with stiff white bristles and a bunch of soft papillae, which seems to be a swimming organ, used to guide it as with quick, characteristic jerks of the body it swims through the water. All its movements are sudden and jerky. All the segments are provided with stiff bristles. Round about the mouth these seem to help the larva by driving in currents of water, containing minute organisms on which it feeds. It grows

Pupa of Gnat (Culex)
Respiratory trumpet of pupa

Pupa of Gnat (Culex) showing the parts of the fly enclosed in the transparent pupa skin The head and thorax are just freed from the pupal skin

(*From Miall*)

to a length of about ½ in , shedding its skin three or four times, and then pupates. Its body is curved and ends in two little leaflike projections, and it appears to have an enormous head with two little ears which project above the water. Actually this is the head and thorax, with the wings and legs of the Gnat showing through the skin, and the two projections are new little breathing tubes The pupa now floats *head uppermost,* not quite passive, for it moves jerkily through the water at times or if disturbed Finally, the skin splits along the back and the Gnat emerges Many of them are drowned in the effort to withdraw their legs from the floating pupal skin It will be seen from this account why it is that, in fever-ridden districts, whole areas can be freed of mosquitoes by covering the surface of all sheets of water with a film of paraffin. The larvae and pupae cannot penetrate it with their breathing tubes and so drown

The Harlequin Fly (Chironomus)

This is frequently mistaken for a Gnat, as it is about the same size, but it can be distinguished by the difference in posture described above The flies are seen in summer dancing about in swarms, over water, or near to it, but they are not nearly so well known to children as their curious little larvae, called "bloodworms," which inhabit our water butts. These little "worms," if disturbed, swim with a figure of 8 jerk, straightening the body suddenly and then as quickly twisting it again

The eggs are laid at the edge of the water in little ropes of jelly, about 1 to 1½ in. long, attached at one end to the side of the tub or tank, or to a stone or weed, immediately below the surface Often these chains of eggs are very numerous The eggs are dotted along them in a spiral row, curiously twisted, but to the naked eye the pattern is not discernible The little wormlike larvae are almost colourless when hatched, and they sink to the bottom and make little tubes in the mud. Here they grow rapidly, feeding on decaying substances, and soon attain a bright red colour, due to the same red substance which colours our own blood, *haemoglobin.* This substance has an affinity for oxygen, so that its presence in these animals probably assists them in making use of the limited supply of oxygen dissolved in the stagnant water, for where dead leaves and other substances are decaying they are using up the oxygen present There is, indeed, another species which lives near the surface, in which the red substance is not present, which supports this explanation of its value

If the little creature is examined with a lens, it will be seen to have a tiny head, with little black eyes, and immediately behind it, a pair of roundish processes fringed with small hooks, which probably help it to move about its burrow, while a similar pair on the last segment may help it to hold on. (*Cf.* the Caddis Worm with its little hooks and tubercles.) The tube is a much less permanent and elaborate arrangement than in the Caddis Worms, and appears to be made by sticking particles of soil together with saliva. On the next to the last segment of the body there are four long, threadlike gills, and on the last segment a bunch of short, thick papillae which probably help breathing It breathes entirely under water.

The pupa is very much like that of the Gnat, both in appearance and habit, having a very large "head" and curved body. It is distinguishable, however, by the large tuft of white hair projecting upwards from the thorax, which consists of finely branched breathing tubes, while on the last segment,

in addition to a pair of short processes like those of the Gnat pupa, there are two bunches of long bristles, the front ones spread out stiffly like a comb.

The Drone Fly (Eristalis)

All through the summer one frequently sees large beelike flies visiting the flowers in the garden, darting away, and returning. Their bodies are black or dark brown. They live, like the bees, on honey and pollen, and so help to pollinate flowers. They have a very curious larva which is frequently found in foul water, known as the Rat-tail Maggot. These larvae hatch from eggs dropped on the surface of the water, and creep about on the mud at the bottom. The extraordinary feature is that the larva has a telescopic tail, which it stretches up to the surface of the water in order to obtain air, for this tail is really an air tube. The tail will always be exactly the depth of the water; if the larva is in very shallow water, the tail will be contracted, if the water is 4 or 5 in deep, the tail will still reach the surface, so that its tip projects. It is provided with a ring of short hairs which press against the surface film and suspend it. The larva is greyish white, soft, without eyes, and feeds on decaying débris, even in manure tanks, from which they can generally be obtained. The larva is also frequently found suspended from the surface film, indeed, if it is given water which is too deep for it, it must remain always in this position, so that it dies either of starvation or drowning. If it is desired to watch the whole development, the tank in which it is kept must give it access to damp earth into which it crawls to pupate, still apparently maintaining its connection with the air, though both tail and body are much shortened.

The Chameleon Fly (Stratiomys)

This is another beelike fly whose larval stage is spent in water. The imago has a thick, furry body, brightly banded with black and yellow. It feeds upon the nectar of flowers, and is sometimes mistaken for a bee, but it has only two wings, broader than those of a bee and not projecting beyond the end of the body, while two spines project from the back of the thorax. The eggs are attached to the underside of the leaves of water plants in overlapping patches: they are narrow and brown. The larva which hatches from them is much more attractive than the last described, having a spindle-shaped body, which it can suspend from the surface film by means of a delicate whorl of long, stiff bristles at the end of the abdomen. These are its most striking features. It presses the ring of hairs against the surface, then withdraws them very slightly, so that they make a shallow cup filled with air, into which the breathing pores at the tip of the abdomen open to obtain their supply of oxygen It floats vertically, but when pupation takes place, it takes up a horizontal position. Then another interesting thing happens. The pupa remains inside the larval skin, but shrinks till it occupies only about half of it, at the head end. Then the fly, when it has matured inside, emerges by splitting open what Miss Lulham calls little "cupboard doors" in the thorax. Professor Miall notes that this fly is said to be rather rare, but doubts it; it is certainly not very uncommon in the southern counties.

The Phantom larva (Corethra)

The last larva to be described here occurs very frequently, yet is apt to be missed unless the catch is scrutinised very carefully when emptied into bowls It is easiest to see this creature in a white enamel bowl or in a glass vessel placed over black paper. It is perfectly transparent and colourless and hangs silently in the water like a little ghost of an insect, moving occasionally by a quick jerk and straightening out again. It gives the impression of being made of glass, especially as just behind the head, and again near the end of the abdomen, there are two swellings that look like blown bubbles, each

containing a tiny black spot. It is by these globules that the little creature shows its presence, for until close attention is given to it, there is nothing else to see When full grown this larva is about $\frac{3}{4}$ in long.

On examination with a lens held close to the vessel (or on transferring the Phantom to a watch glass), the head will be seen to be elongated, and provided with short, prominent feelers, which are modified in this case for seizing small animals in the water. Behind these are small jaws Two large black eye spots lie towards the back of the head, then there is an enlarged thoracic segment, bearing the curious little bubbles referred to, said to contain air and to have some function connected with buoyancy (like the water wings used by inexperienced swimmers) The second pair occur on the next to the last segment They are marked by black pigment On the last segment a fan of stiff bristles projects downwards and seems to help movement, while smaller bristles terminate the segment.

The pupa has a large head end with a pair of little breathing funnels very much like a Gnat, but with perhaps a slightly smaller head thorax It has, however, a distinctive movement if disturbed, for it bobs up and down vertically as if on elastic.

It is hoped that a sufficient number of forms have been described to show that there is a wealth of interest in the habits and devices of the "water-babies" when once attention has been called to them

XX. NEWTS

NO child can resist a Newt However many he may have crowded into his jam jar, he must have still one more. They are taken home in these close quarters, and then, fortunately for themselves, they usually contrive to slip out and silently steal away. It is therefore a good thing to appeal to children's sympathy on behalf of the Newt, and to try to persuade them on the one hand, to watch the newts in their natural surroundings instead of trying to catch all they can find, and on the other hand, if they must bring them into captivity, to consider what they will need, and most important of all, to feed them. A Newt is a debonair little being in his bright spring coat, swimming vigorously about the pond, remaining under water and then suddenly darting to the surface and projecting the tip of his snout to breathe, then

diving again, and discernible instantly below the surface at the other side of the pond. But he loses the gloss and brilliance of his skin, and becomes listless, thin and pale, or at least dull, after a few days in captivity, even if he is given a large bath to compensate him for the wide spaces of the pond.

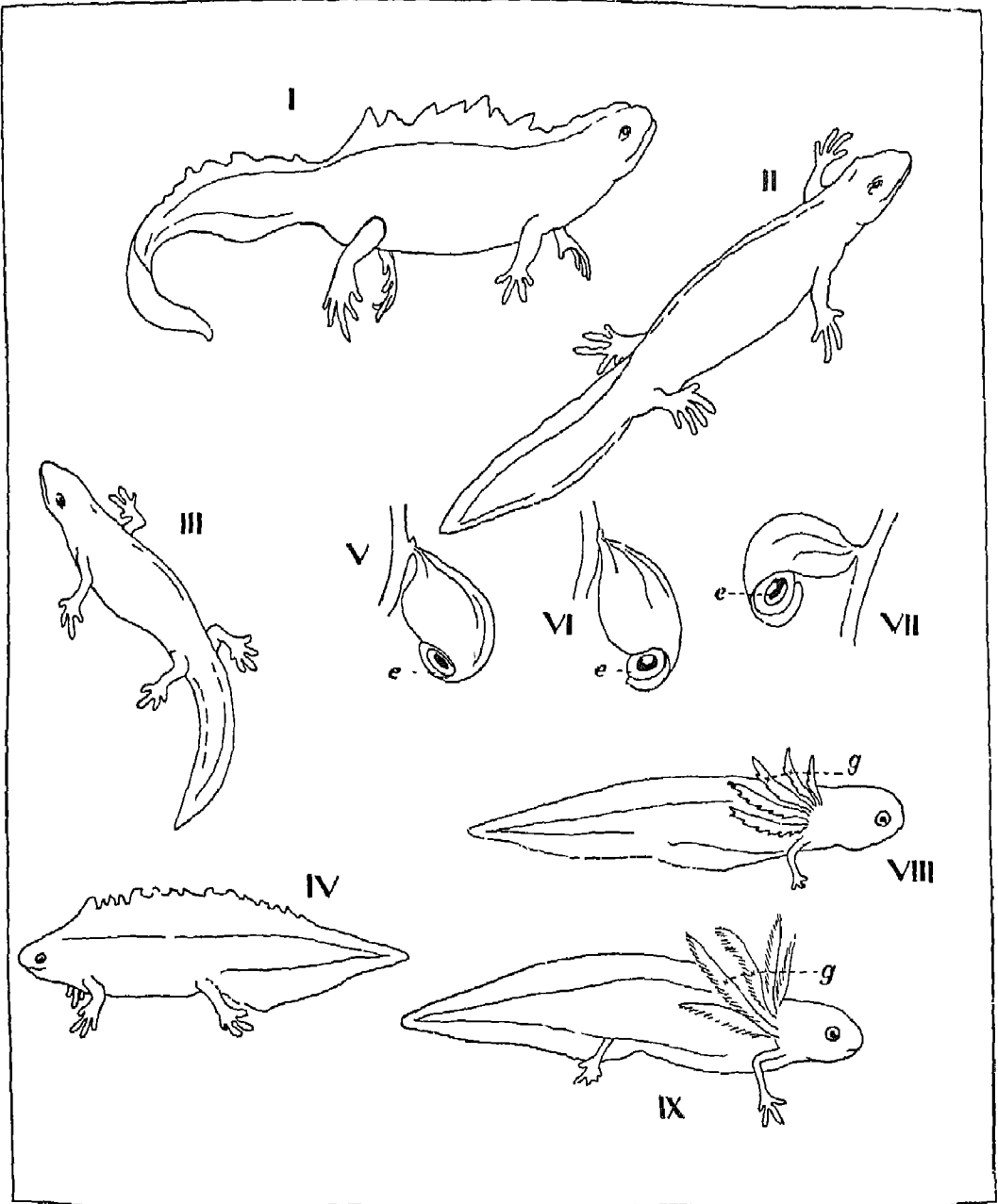
Newts spend the greater part of the year in damp ditches and fields near water, coming to the ponds only for the breeding season and remaining till about mid-June After that, from being plentiful they become rare. They hibernate, perhaps in a hole at the foot of a tree, or in a sheltered ditch amongst the decaying vegetation. On one occasion a small Newt was found on removing some dead oak leaves from the forked roots of a tree in a London park It was uniformly coloured exactly the same tawny colour as the leaves, and the skin had the same matt texture

In the spring they repair to the ponds, where breeding takes place The eggs are laid singly by the mother on a leaf, which is then folded over the egg by movements of the hind legs Usually a broad leaf, such as Water Cress or Bitter Cress is chosen, but sometimes they will use the narrow leaves of Starwort and the egg can be clearly seen, a ball of colourless jelly about $\frac{1}{8}$ in. across, with a black speck in the middle.

A small colourless larva hatches out of the egg, more fishlike than that of a Frog, growing more slowly and nearly transparent. After some weeks it becomes delicately coloured and spotted. It has a wide transparent fin passing along the middle of the back, round the tail, and forwards along the ventral surface to the anus This fin and the glistening, pale colouring make it look very like a fish, especially as it gleams silvery in the net But as soon as it is placed in water it darts away with a lateral stroke of the body, and one can see that it has feathery tufts of gills projecting far back on the sides of the head Later, two pairs of exceedingly frail-looking legs appear. For a long time growth seems to go no further Indeed it is difficult to tell the exact age when further developments take place, for if the immature newts are kept in captivity, it is difficult to induce them to feed sufficiently, and normal growth receives a check. They must obtain plentiful supplies of small creatures in the pond However, they will feed voraciously on water fleas if the supply can be steadily kept up, and later on small worms, "blood-worms" and ants' eggs The mature Newts will feed heartily on all these kinds of food, and are very fond of a diet of tadpoles

Newts kept in captivity should be given an island on which they can bask, built up of large stones, with a tuft or two of grass above the water. The vessel needs to be closely covered, but no precautions will avail for very long, the newts are almost certain to escape after a time. It will be noticed that they are able to flatten their bodies against the glass and climb up the smooth sides and cling there, helped perhaps by the slimy nature of the skin

Newts, like Frogs, belong to the group of Amphibia Though the long, slim body has a lizardlike appearance, they differ from reptiles in being covered by a smooth, thin skin through which accessory breathing takes place, with no outgrowths of the skin, either of scales, hair or nails, for the toes have no claws. It will be noticed that movements of the throat assist breathing, as in the Frog, for air has to be swallowed The larva eventually loses its gills and breathes, like the Frog, by lungs Very small teeth on the palate and edge of the upper jaw assist the Newt in holding a slippery victim such as a worm, but they are of no use to bite or masticate, consequently the Newt must swallow its food whole, and it frequently happens that it seizes a worm that is longer than itself, and can be seen gasping and swimming violently about for ten minutes or more before the worm either wriggles out, or is swallowed in a series of great gulps Very often two newts will seize one worm, when each will swallow half and they meet in the middle Neither will give way, eventually either the stronger manages to pull the worm back out of the body of the

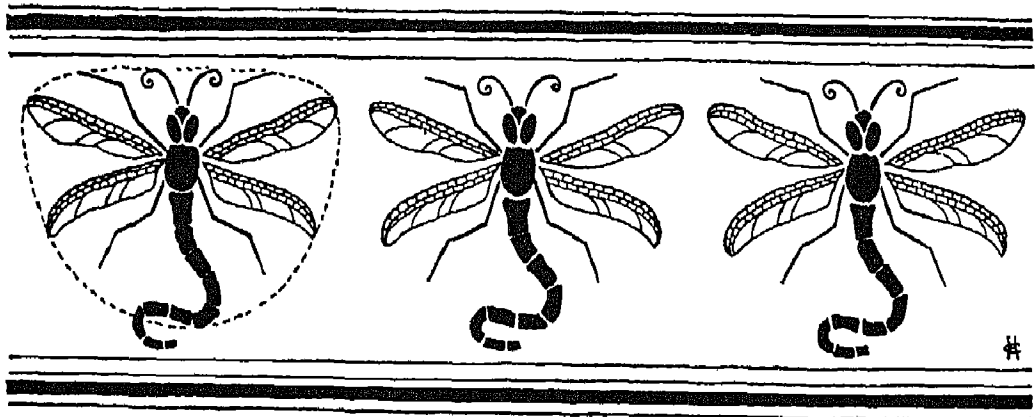
PLATE XVII

NEWTS I Male Crested Newt II Female Crested Newt III Female Common Newt IV Male Common Newt V Watercress leaf wrapped round egg (e) VI Watercress leaf unwrapped to show egg (e) VII Leaf unrolling as egg develops VIII, IX Stages in the development of the Newt "tadpole" g, gills.

other, or the worm occasionally is torn in two.

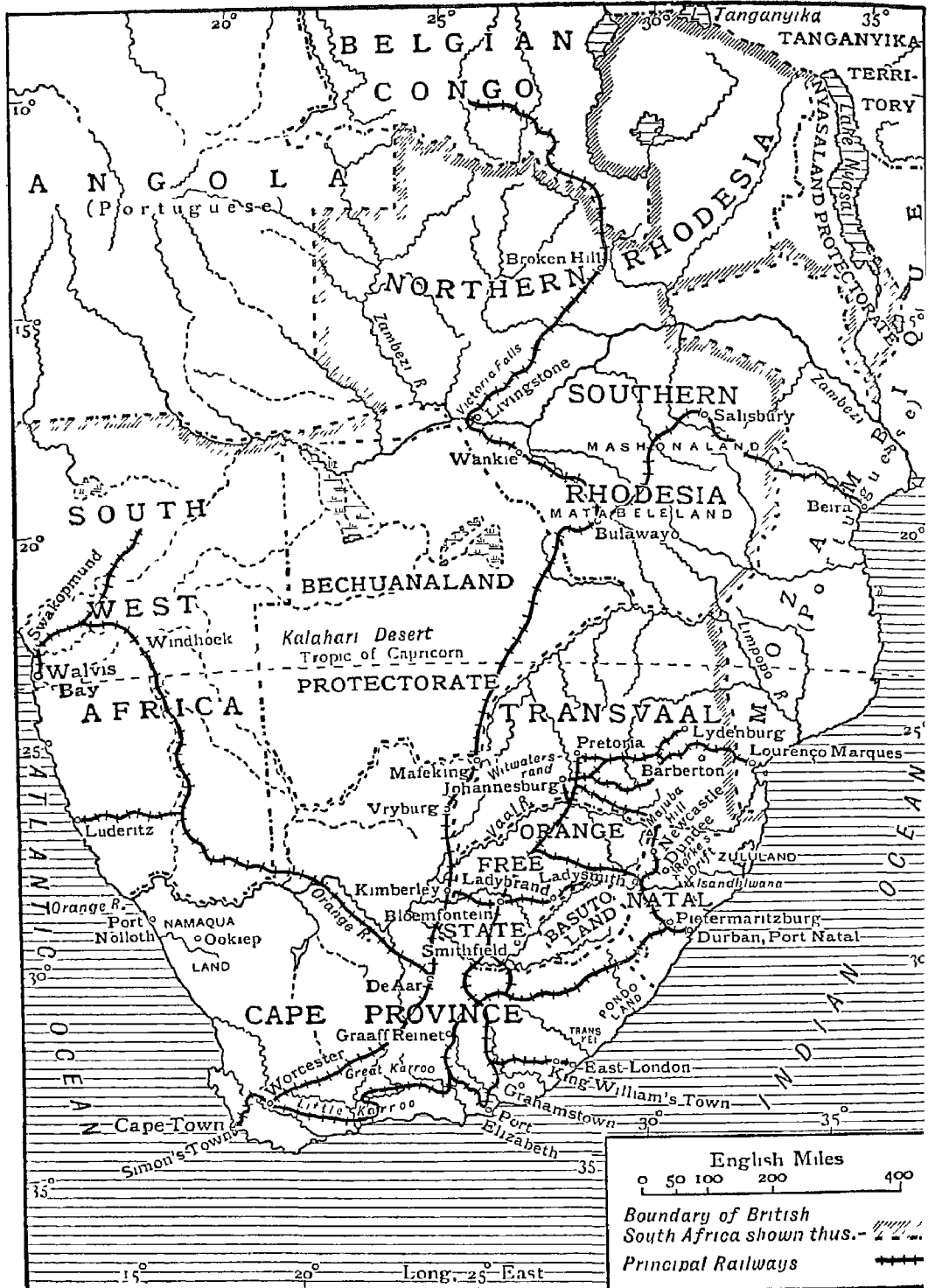
Male newts can be distinguished from the females by the crest which rises from the middle of the back. This is especially prominent in the breeding season, when the whole body is much more brightly coloured than that of the female, but at all times it can be detected

There are two British newts, the Common Newt and the Crested or Warty Newt. The Common Newt has a smooth skin, pale brown above and light grey or white underneath, speckled with brown and yellow. In the breeding season the colour of the male deepens, and especially the under parts become much brighter yellow, with more prominent spots. The Crested Newt is much larger, a dark olive green to black in colour, suffused with vivid orange, and spotted with black on the under surface, and has a much bigger crest in the spring. The female sometimes has a slight suggestion of a crest also The skin is roughened by small granular dots, which give it the name of Warty Newt. It is about 5 in. long, whereas the Common Newt reaches only 3 or 4 in.

There is nothing new to say about methods of study, which would follow the lines indicated for the Frog in Volume II. The life history is more difficult to follow through, but by the third year both teacher and children will have had some practice in observation, and in tending all kinds of small living creatures, so that with care there should be no difficulty in rearing the larvae and bringing them to maturity.

It is quite easy to obtain the eggs, for newts in captivity lay them quite freely if they are provided with a suitable rooted weed

THIRD YEAR'S COURSE

OF

DESCRIPTIVE GEOGRAPHY

Map of South Africa showing Chief Railways and Towns

DESCRIPTIVE GEOGRAPHY

I. SOUTH AFRICA—PEOPLES

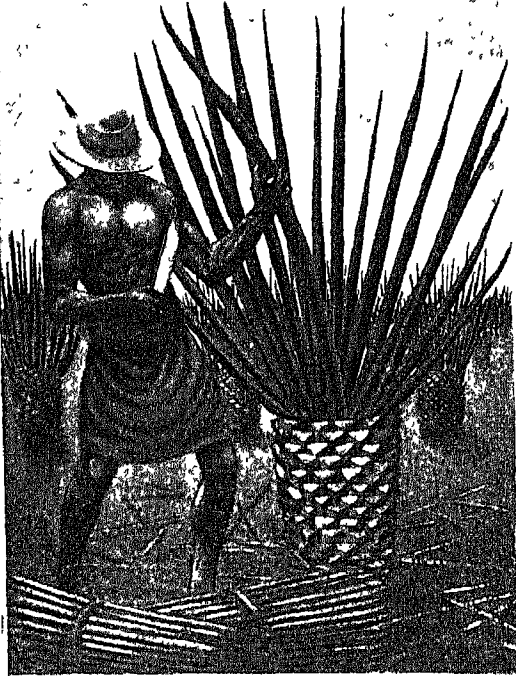
PICTURE REFERENCE

THE Class Pictures illustrated on the two following pages (Nos 88 and 89 in the portfolio) show some of the peoples of South and East Africa. Let the children examine the pictures, noting the various occupations of the men and women and the dark skin common to all

The Children's Story in this chapter deals with the Bantus, the word being a general term for the many peoples of Negroid stock in the southern part of the continent Originating in the lake district of Central Africa, they displaced the Bushmen and Hottentots of the south, who now in ever dwindling numbers live chiefly on the borders of the Kalahari Desert

Notable among the Bantus shown in the pictures are the Zulus, a race of magnificent physique and independent character, and with a proud record of warlike feats in years gone by Apart from the benefits of health and educational services they are little touched by civilisation and in their land on the east coast of Natal preserve to a large degree their ancient laws and customs The chief is shown in his warrior's equipment, which he wears on ceremonial occasions, he is a fine figure as he strides through the long grass to a gathering, flourishing his cow-hide shield, his knobkerrie (club) and his assegai (spear) gaily, and his trimmings of goats' hair fluttering in the breeze. Behind him is part of his hut, the dome shape and heavy thatching of grass being typical of the dwellings among the *kraals* or villages of the grasslands In front of it is a stiffly woven screen, which is drawn across the low doorway at night Many of the men depart in season for the large towns, where they engage in various remunerative pursuits, sooner or later they return to their kraals and quickly discard any marks of city life which they have temporarily assumed.

Zulu women have a superb grace of carriage, no doubt acquired to a great degree by the habit of carrying water pitchers and other burdens on their heads from childhood Besides the normal household duties they are mainly responsible for the village crops and between-times make beautiful fringed cloaks and blankets of softened skins, weave mats and mould earthen pots. One notable point is the style of dressing the hair, which is as important to African women as it is to those of other nations. It may indicate a particular people or whether a woman is married or of marriageable age The hair of the Zulu woman in the picture shows her married state and has been most carefully dressed by a friend It has been pricked out strand by strand with a porcupine quill and "set" with fat, and in order to preserve it for a long time without disarrangement the woman will sleep with her head resting on a hollowed stool. (See blackboard sketch, page 509.) Other features of Zulu women, their ornaments and method of carrying babies, are shown in the illustration on page 458

The people gathering oranges are skilled Bantu farm workers who have given up kraal life. They live with their families on the farm in neat huts and wear European dress Large numbers of Bantus also live permanently in the towns, working in hotels, factories and at all sorts of general tasks Their homes are in special areas, where they are helped by education, social functions and opportunities for sports to adapt themselves to the demands of modern life

AFRICAN MEN

1 ZULU CHIEF
2 CUTTING SISAL IN TANGANYIKA
3 BANTUS GATHERING ORANGES
4 "FUZZY WUZZY" OF THE SUDAN

(Class Picture No 88 in the portfolio)

AFRICAN WOMEN

1 WIFE OF A COTTON FARMER, UGANDA
2. POT MAKER, ZULULAND
3 PICKING COFFEE, KENYA
4 SIFTING MEAL, SOUTHERN RHODESIA

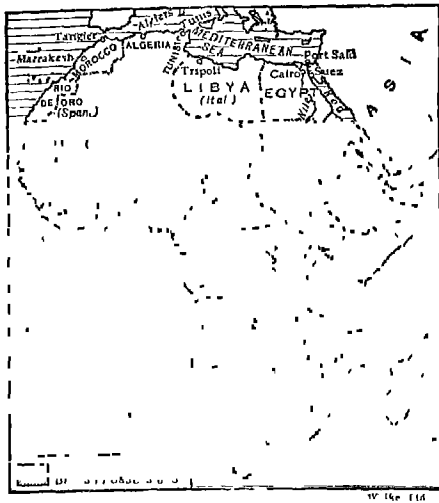
(Class Picture No 89 in the portfolio)

INSIDE A ZULU HOME

(Class Picture No 90 in the portfolio)

The illustration above (Class Picture No. 90 in the portfolio) shows Inside a Zulu Home Notable points are the structure of strong posts and curved rafters supporting a frame of wicker-work, the disregard for furniture, floor coverings and ventilation, the hollows for the fireplace and for the round-bottomed pots; the family possessions —utensils, some "trade" and some hand-made, pumpkins, sacks of mealies, hanks of fibre and, at the back, two squares of woven grass used as head-coverings Two women, carrying hoes, have returned from their gardens, while a third is making a sleeping-mat

INTRODUCTION

The Cape of Good Hope was discovered in 1487 by the Portuguese navigator Bartholomew Diaz In 1497 Natal was sighted by Vasco da Gama on Christmas Day—the "natal" day or birthday of Christ Colonisation was begun by the Dutch in 1652 at the Cape, the settlement being formally ceded to Britain in 1814 The entry of British colonists was resented by the ruggedly independent Boers or Dutch farmers, who "trekked" from Cape Colony to Natal, spreading later to the Orange River Colony and the Transvaal Discoveries of diamonds and then gold, resulting in a rush of *Uitlanders* or foreigners, led to war between the Boers and the British, troubles eventually being healed by the foundation in 1910 of a united South Africa, when the four colonies —The Cape of Good Hope, Natal, The Transvaal and The Orange Free State—were

EMPIRE TERRITORIES IN AFRICA

included in one government under the name of The Union of South Africa The former German colony of South-West Africa is administered by the Union under a Mandate

Only a small portion of the country is within the tropics, and consequently the greater part of South Africa is fit for white settlement

The Boer or Dutch Afrikander.—The South Africans of Dutch extraction are the descendants of about a thousand Dutch settlers who were in the country in 1691 It must be remembered, however, that a small community of about 150 French Huguenots were in the colony at that period, and they formed a part of the Afrikander community.

French was forbidden as the spoken language, and a Dutch patois, called the *Taal*, now known as *Afrikaans*, became the national tongue. The Great Trek, which started in 1836, finally led to the establishment of the Boers in the two republics. Farming became their great business, and a very simple mode of life was enforced upon them by their isolation. Food supplies were restricted to what was grown or shot, and they became excellent marksmen and expert horsemen. There are no better marksmen than the Dutch Afrikanders. At one time it was the custom for boys to be sent out in the morning with a single cartridge, and be expected to return with food for the day Through necessity dress was more serviceable than elegant Even the President lived in a cottage Few books but the Bible were read, and many of the early villages received Biblical names. The Boers developed into a reticent people, lacking in self-expression, and accustomed to action rather than to speech. Lack of routes led to the characteristic South African conveyance by ox wagon. Though there are now great towns, excellent roads and railway routes, the transport by ox wagon over the veld is not yet a thing of the past

Native races.—When the Portuguese and Dutch first reached South Africa they found the Cape area in possession of Hottentots and other tribes of a low order of civilisation The first settlers to penetrate the interior discovered the Bushmen, a primitive people who lived mainly in caves, but who led a wandering life, constantly moving from place to place. The Bushmen receded before the Bantu migration from the north-east and the later European migration from the south, and are now found only in the remote parts of the dry interior

Bantu is a collective name for a vast number of Negro tribes, which constitute the greater part of the population of South Africa Out of a total population of 11,000,000 in the Union, more than 66 per cent are Bantu, and about 23 per cent of European stock Africa is still the home of the black man. He is not dying out, and his presence in such large numbers gives a distinctive character to life and work in the Union of South Africa. More than half of the Bantu population remains under tribal conditions and has little association with the European population They occupy land set aside for them, they are free from any charge except the hut or poll tax, and they support themselves by tilling the soil and keeping cattle The younger men often

leave home and serve for a time in the mines or on a farm, but most Bantus know the outer world only by repute. They are supervised and regulated by European magistrates and officials, but generally the old tribal customs persist. Those who serve a white employer stay away from their village homes only for a very brief period—from three to six months on a mine, and rather longer when working on a farm It is rare that they seek employment after the age of forty years.

In the towns Bantus act as domestic servants, chefs, waiters, porters, mechanics, gardeners, navvies and messengers. It is interesting to notice how large the coloured population is in some of the important towns. (The numbers are given in round figures)

	White	*Coloured*
Cape Town	172,000	165,000
Durban	95,000	165,000
Bloemfontein	30,000	35,000
Pretoria	77,000	52,000

In the smaller towns of the Union the coloured population almost always exceeds that of the white

In many respects the Bantus have benefited by their contact with European civilisation. In the native reserves they enjoy peace and prosperity, as a result of the protection against inter-tribal wars and raids which were formerly so prevalent. Missionaries have worked amongst them for many years and have been responsible for great improvements in the tribal mode of life. Schools have been established, including trade schools where young people train to become skilled workers On the whole the Bantus are better in character and more industrious than of old. Although white and black people come into close contact in South Africa the two races remain separate. Where the Bantus live amongst the whites they are kept apart as much as possible. In the towns they have their own quarters, churches and schools, and certain coaches on the railways are always specially reserved for their use

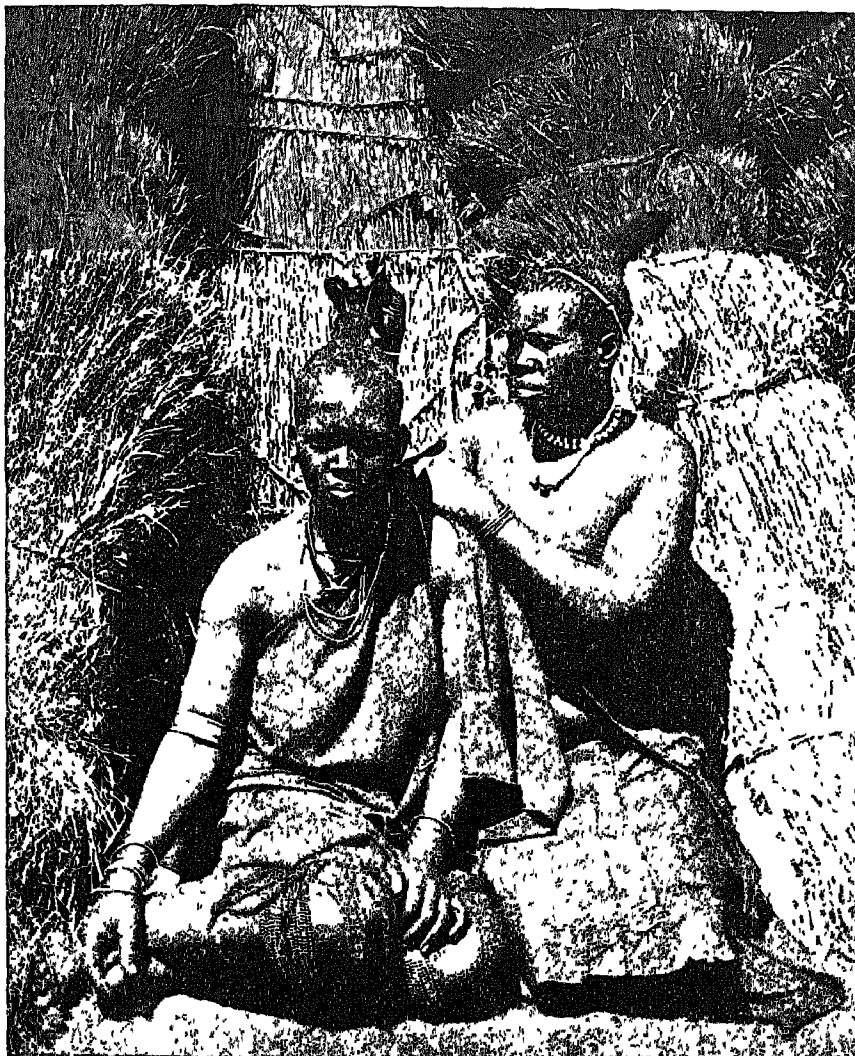
The Bantu has woolly hair but his complexion is not so dark or his nose so flat as in the true Negro. Bantus are usually associated in large communities, under the rule of a chief. They possess great herds of cattle and grow their own food. Their religious sense is characterised by a belief in witchcraft, a belief which is founded upon the powers assumed to be possessed by the spirits of the dead to work good or evil. In every community the witch doctor is a prominent man and his profession is a profitable one. Witchcraft is prohibited by law, but the fear of spirits and the widespread belief in their powers keep the witch doctor busy.

Wealth is measured by the number of horned cattle a man possesses, and tributes and fines are paid in cattle. Polygamy is a recognised institution, but the exchange of cattle for a bride is by no means the commercial transaction sometimes believed

As far as possible old native customs and laws still prevail, but they are modified to prevent tribal feuds, cattle raiding and crime Authority centres first in the head of the family, then in the headman of the locality, and finally in the tribal chief who is assisted by his indunas or counsellors.

Among the Bantus, action dances of all kinds give expression to the childish element in the native character. At marriage ceremonies and similar occasions the dance lasts until dusk, accompanied by the consumption of native beer

The Zulus are an important branch of the Bantu family and live chiefly in Natal, in the region formerly known as Zululand. In the Zulu war of 1879 their great chief Cetewayo was defeated and captured. In his place thirteen separate chiefs were appointed to preside over the people and this number was later increased to a hundred

The Zulus are a pastoral people but they also carry on a small amount of agriculture. Maize is the staple food, and the cultivation

[*Reproduced by courtesy of South African Railways*

ZULU WOMEN HAIRDRESSING

of the mealie fields, and also of millet, sweet potatoes and vegetables, is wholly the work of the women Except tending the cattle, all the work of a Zulu community is done by the women. A Zulu hut resembles a beehive in its structure, and it is made of canes covered with skins and grass. A collection of about thirty or forty of these huts is formed round a central cattle enclosure, and such a group is called a *kraal*. There are usually as many huts as there are wives, with additional ones for the young men and for the storage of grain. Unless the kraal is in country where lions abound there is no surrounding palisade or fence, for tribal wars have ceased and

[*Reproduced by courtesy of South African Railways*

ZULU WARRIOR

protecting walls are not needed Furniture does not interest the Zulu All the equipment that is needed consists of a few iron pots, some gourd vessels and earthenware jars. A large jar is needed for the mealies One or two stools, a few skins and a little matting making the household equipment complete.

The Zulus pay little attention to dress, but they are very fastidious about the hair The women especially are very particular about that feature of their personal adornment Feathers, quills and sometimes horns are used as head decorations A small apron and a string of beads sometimes make up the complete dress. Both the men and the women are magnificent creatures physically, strong in limb, erect in carriage and graceful in movement. They are the most virile of the Bantu tribes and are noted for their wild war dances In towns the Bantus usually dress in various forms of European attire, but in the country they live as their forefathers did centuries ago.

Bechuanaland, a territory which receives its name from the Bechuanas, is a Protectorate between the Nalopo and Zambezi rivers Over 260,000 Bantus live in this area, which contains only about 1,700 Europeans There are many tribes, each under the rule of its own chief A resident British magistrate is in charge of each of the eleven administrative districts into which the Protectorate is divided. The people are tall, stoutly built, have woolly hair and dwell in huts which have a high conical top. The dress usually consists of an apron round the waist, but on special occasions they wear a cloak of skins hung from the shoulders. Much of the country is thick bush, but large herds of cattle thrive on the grasslands and millet, mealies, beans, melons and pumpkins are grown.

Basutoland derives its name from the African people called the Basutos, who number some 560,000 compared with 1,400

[Reproduced by courtesy of South African Railways

BANTU CHILDREN

Europeans Settlement by Europeans is generally prohibited, and is limited to the few engaged in trade, government and missionary work Every adult male Basuto pays an annual tax for Administrative purposes.

The Bushmen and Hottentots inhabit the desert and very dry parts of South Africa The Bushmen are a small people, not much larger than the forest pygmies They have yellowish-brown skins, thick lips, broad noses and receding foreheads On the head are isolated tufts of woolly hair They usually live in caves and are clad mainly in animal skins The Hottentots are slightly higher in the scale of civilisation. They live in dome-shaped huts made of grass and matting Both the Bushmen and the

Hottentots are dying out. Southern Africa contains numerous Bushman caves, and explorers often come upon Bushman paintings in long deserted caverns.

In the Cape Province the native population is centred in the reserved territories and a number of eastern districts, with King William's Town as the area with the densest native population

In Natal about one quarter of the native population is to be found in Zululand, while in the rest of the province the Bantus are evenly distributed throughout the various districts.

In the Transvaal the bulk of the native population is contained in the Witwatersrand area, where there is a great demand for native labour in the mines There are considerable numbers living in their tribal condition in the Bushveld of the north.

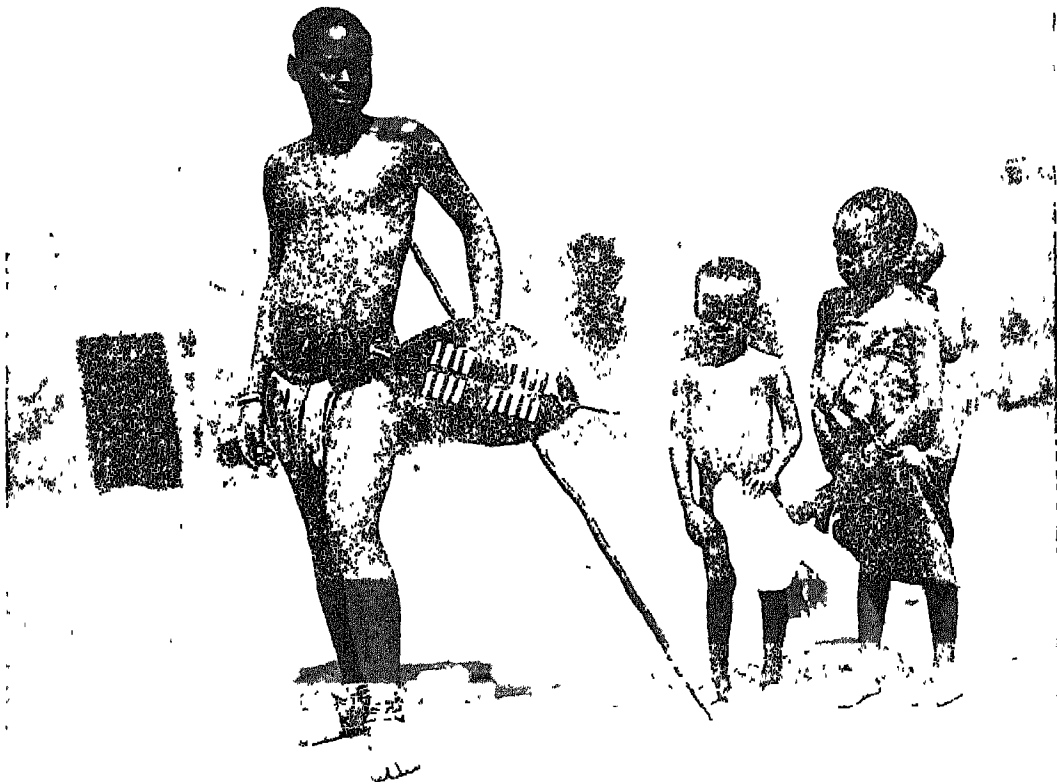
In the Orange Free State the Bantus are principally located in the central and eastern districts adjoining the Basutoland border

CHILDREN'S STORY

South Africa is a land of black people, for although many white men have made homes in the country, there are more than four times as many blacks as whites there The black people, moreover, are not dying out or trying to live as the whites do. They keep their own customs and are increasing in number every year. No other land in the empire is like Africa in this respect. In Canada and Australia white people greatly outnumber all others In New Zealand the Maoris have copied the settlers, and dress and speak like them. The government of South Africa is doing its best to keep the Blacks happy and contented, and hopes finally to educate them into citizens who can take their share in the affairs of the country.

The Bantus.—Most of the native peoples of South Africa are called *Bantus*. They are chocolate coloured, woolly haired, flat-nosed, thick-lipped people, who hunt, rear cattle and till the ground. Their hunting weapons are *assegais*, i.e spears, *kerries*, i.e. clubs, and oval shields of hide Their huts may be round, beehive-shaped or cone-shaped They have frameworks of stout cane thatched with grass and leaves, as you can see from the Class Picture. A Bantu *kraal* or village is a number of these huts arranged in a circle with a fence round it for protection from wild beasts. The empty space in the centre of the village is the cattle kraal, which is also fenced in with branches of thornbush. The huts have no chimneys or windows, and they have very low doorways, against which hurdles of basketwork are placed at night A wood fire is kept burning in the hut day and night in a shallow hole in the middle of the floor, and the smoke clings about the hut and escapes through the thatch as best it may. Let us picture a day in the life of a Bantu.

The morning sun streaks the sky with lines of pink and yellow, a mist rises from the valley, and jackals and hyenas sneak off home to their dens. At the foot of a hillside little groups of huts cluster round central yards "like mushrooms in fairy rings." Five or six huts make up each kraal A peep into one of the yards reveals it to be dusty, with ends of maize cobs and wood chips scattered about. In a corner is a basketlike, thatched storehouse on four poles, in which grain is kept dry and out of the reach of ants.

An old man takes away the door of a hut and props it against the hut's side. He crawls out of the doorway on hands and knees and pulls his blanket round him with a grunt Instantly follows a rustle and clucking inside the hut, and the hens perching at the back flutter down one by one, blowing the ashes of the fire about with their wings The dogs yawn and stretch, and the family wakes up A dozen voices chatter at once, and the women throw their blankets over their shoulders and roll up their grass sleeping mats. Then some women set out for the river carrying water pots on their heads and talking loudly as they walk along.

[*Reproduced by courtesy of C P R.*

YOUNG BANTU WARRIOR AND CHILDREN

Others search for firewood. The children run off to play, and the men go outside for a breath of fresh air. The hot embers of the fire are blown into flame, and the round pot, half filled with water, is put on to boil. A woman grinds some mealies on rough stones and sprinkles the flour into the boiling water She stirs it with a stick and then leaves it to thicken When the mealie porridge is cooked and cool, all gather round and help themselves in turn with their fingers, or with wooden spoons until the porridge is finished The burnt crust at the bottom is considered the best part of the feast and everyone has a share of it

After breakfast the women do the household tasks and prepare the dinner. The men sit about chatting till the dew is off the grass, and then they take away the gate poles from the cattle kraal, and the big boys lead the cattle out to pasture. The older men go off on horseback, or sit and carve logs of wood into stools and milk pails The young men have their hair plaited with grass and they smear their skins with oil and red clay. When they have made themselves trim and shiny they stroll off to visit their sweethearts.

After dinner the women take hoes or digging-sticks and work on their gardens,

while the men pay a visit to the nearest trader's store and sit under the veranda listening to the news of people from other parts They seldom buy anything, but they are fond of looking at and handling articles in the store. Should a customer come to buy a blanket, everybody watches the deal, gives advice and feels the goods, and there is endless bargaining At length the men return home to their evening meal and then all sit chatting round the fire till bedtime.

Education.—In Christian villages, where the men went as boys to the mission schools, the people build huts divided into rooms and possessing little windows which can be covered by shutters. The women dressed in cotton frocks sweep out their houses with bush brooms. Rough beds, tables, and chairs made from boxes are used in the huts The boys often wear shirts and shorts and go to school Some of the men are school teachers, and others keep small shops or tend cattle to earn money so that they can send their sons to school

In school the children are taught to count, read and write, to be cleaner in their habits and to be better gardeners. In the larger schools they learn geography, and are deeply interested in finding out new things about Africa, and in seeing pictures of strange places. The girls are taught sewing, knitting, handwork, cooking, and the care of babies Everyone loves singing, for the Africans are musical people. At the boarding schools boys learn to be carpenters, masons and teachers

Black children are happy souls and enjoy life. They make toy dolls and animals out of clay and mealie cobs, they fashion dolls' houses exactly like their fathers' huts, with frameworks of sticks which are thatched with leaves by the girls They play at hide and seek and other games known to white children, and they spend hours by the river, bathing, sliding down the banks on toboggans of stiff oxhide, or enjoying a game of marbles with the yellow balls of the thornbush fruits. The boys set traps for birds and animals; they have to scare birds away from the crops and tend the cattle and goats; the girls help their mothers to grind corn When they grow older, the young men sleep together in a hut of their own. Some become hunters who guard the herds from lions, leopards and hyenas; others go off to work in towns or in mines The girls are soon married, and then they have to do all the hard work and cultivate the fields.

The Zulus.—In Natal live some famous tribes of Bantus called Zulus. They are very fine, strong men and women, proud and brave They were once ruled by warlike chiefs who trained them to be expert fighters, and make war upon the British and Boers These chiefs were defeated and killed, and the Zulus are not now allowed to make war on other people, or to carry off their cattle The men keep large herds of cattle and the women grow crops of mealies, sweet potatoes, millet and vegetables. From the millet they make beer to drink, and they feed chiefly on mealies and milk. They like the milk only when it has gone sour and curdled, and they never drink it fresh. Their cattle take the place of money. When a Zulu wishes to buy a wife he pays ten or twenty head of cattle to her father, and the more cattle and wives a man has, the more honoured he is The Zulus, like most Bantus, believe that storms, plagues of locusts and caterpillars, and diseases are caused by evil spirits, and the witch doctors are asked to charm away these misfortunes. A witch doctor used to be greatly feared in a tribe, because the people believed that he had power over spirits The teaching of missionaries is helping to cast out this fear, and during the last century many thousands of Bantus have become Christians

All Bantus are fond of dancing, and at the "cutting" or harvesting of the crops the Zulus hold a great feast where there is both dancing and drinking They call it the "Feast of the First Fruits." The young

men show their strength and skill at sports, and everyone is very merry and excited War dances are often held, and the Zulus then pretend to kill imaginary enemies, as English boys do when they play the game of "Red Indians."

The Boers and the British.—The many white people who live in South Africa and govern it are mainly descendants of British and Dutch settlers. The Dutch settlers, once known as Boers or farmers, sailed from Holland and settled near Cape Town in the seventeenth century. For 150 years these Dutch settlers lived round the Cape of Good Hope, slowly spreading a little to the north and east of the country They treated the Africans harshly and made slaves of them. At length, in 1814, the Cape settlement became a possession of the British Empire, and thousands of Englishmen went out to it The Boers did not care for British rule, and after much quarrelling they packed their household goods on bullock wagons and moved away to other parts of South Africa Some settled among the Zulus in Natal, and others crossed the rivers into land beyond the British domains. This movement of the Boers was called the *Great Trek*

In the new districts, however, the Boers and the Africans could not agree Quarrelling and fighting went on constantly, and at length the British government stepped in and took possession of all the settlements Then war broke out between the Boers and British Many battles were fought and hundreds of lives were lost before the Boers finally laid down their weapons and agreed to become loyal subjects of the king, and members of the British Empire. Soon afterwards, in 1910, all the South African colonies were united under one government

Nowadays, a visitor travelling up-country in South Africa hears spoken in the farmhouses a queer language called *Afrikaans*, which has Dutch, English, French and Bantu words all mixed up in it. It is spoken by the Boers, most of whom are farmers, rearing sheep and living with their families in simple, one-storied homesteads built on the wide *veld* or plain They do not care for life in towns where houses stand close together. Some years ago an old Boer farmer remarked that he thought the country was overcrowded

"What makes you think that?" asked his friend

"Well," replied the Boer, "I can't drive an hour away from my farm without seeing a house somewhere in the distance."

TEACHING HINTS

1. Map.—Before beginning the lesson let the children find Africa on the globe and map of the world, and note its size as compared with other countries about which they have been taught Let them look for the line of the equator, for the Indian Ocean and the position of India, and ask them to suggest directions in which men might travel from Britain to India by way of Africa When they have discovered the Red Sea, point out to them the Suez Canal, explaining that Africa was once joined to Asia, and consequently many tribes of eastern peoples have in years long past wandered into Africa, thus they must expect to find different native peoples in various parts of the continent

As the lesson proceeds, let the pupils locate on the map each place mentioned, so as to associate the people and their occupations with the districts—the nomad "Fuzzy Wuzzy" of the semi-desert region, the coffee picker and the cutter of sisal leaves from the hot parklands, and the Zulu who combines agriculture with cattle rearing in the warm temperate region The associated Class Pictures, map and story will then become vivid realities in the pupils' minds

2. Concrete illustrations.—Collections of articles made by African people, blackboard sketches, picture postcards and paper cuttings all add to the interest of the lessons Raffia bags and mats, strings of African

beads, a maize cob, an African charm, or any other article possessed by a pupil might be brought and handed round the class

3. Parks.—South Africa possesses several vast national parks reserved as sanctuaries for wild animals. The most famous is the Kruger National Park, N E. Transvaal. In another, in the Kalahari region, are many caves containing Bushman paintings.

4. Effect of civilisation upon the Bantu.—Civilisation seems to have affected the Bantu in a curious way. It has either made a much better man of him, or a much worse man. At one extreme there are native graduates at the universities, native doctors of medicine and native lawyers; but at the other extreme are some who give the authorities much trouble The great mass are an honest, law-abiding people, with all the old passions held in check; they provide a useful supply of labour in every industry of the Union The Negro, on the whole, is anxious for education, and numerous schools are supplying his need.

5. The southward movement of the black man.—The great trek of the blacks probably took place in the fifteenth century. They moved southward across the Zambezi, wiping out the Bushmen and Hottentots There was no attempt at settling down, the stronger tribe being always ready and anxious to attack and massacre a weaker one. Women were never killed, and so it came about that women became comparatively numerous Polygamy became the rule and a necessary expedient.

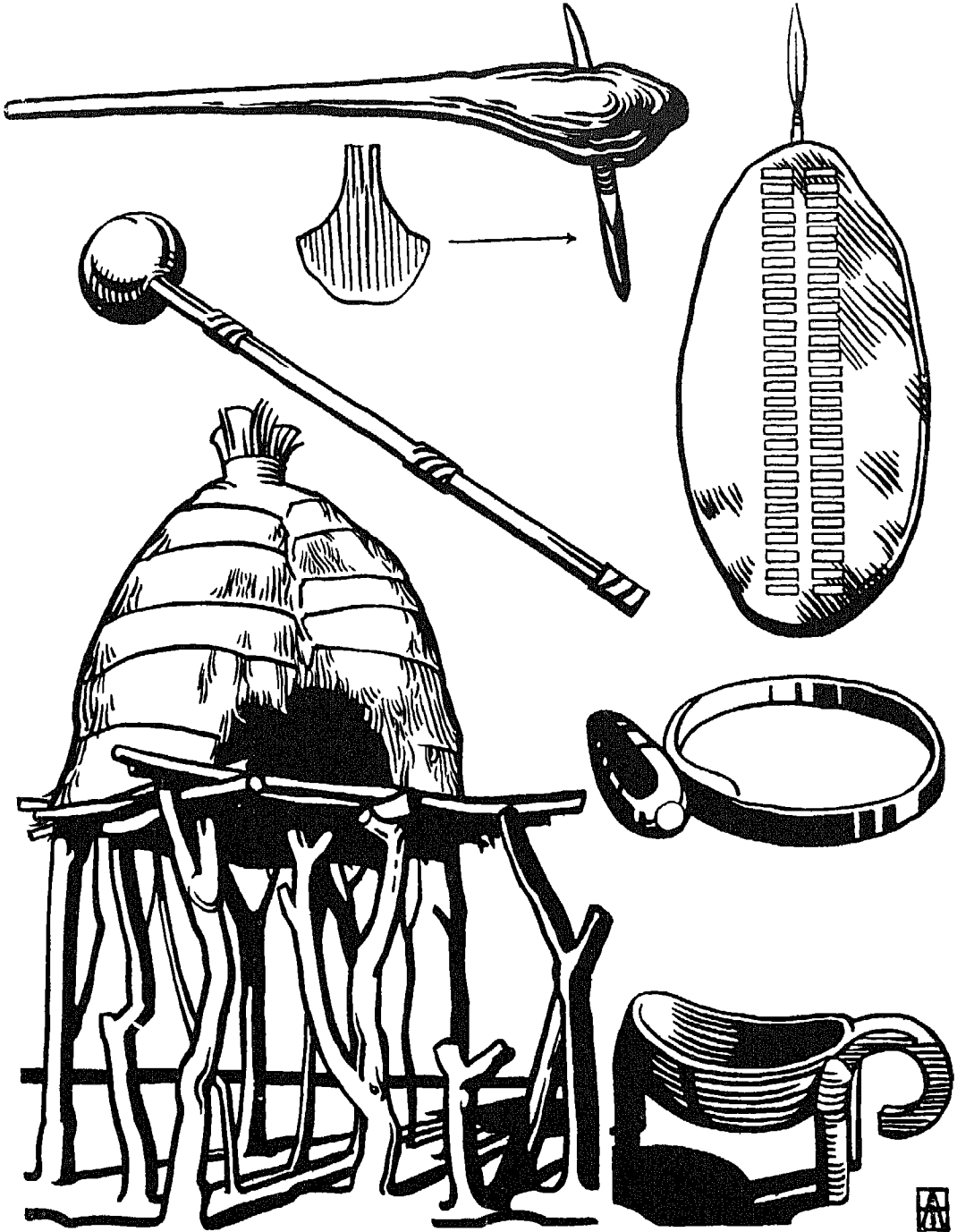
6. The Place of the Great Chiefs.—There is one spot in Zululand which the Zulus regard with awe They call it *Makosini* (The Place of the Great Chiefs), since it is the burial ground of the kings. Eight of their kings are interred at the spot, and the Zulus believe that the spirits of these great potentates haunt the spot.

7. Locusts.—A notable achievement in South Africa has been the ridding of the country from locust plagues, at least there have been no severe plagues for several years, although plans must always be ready to fight a threatened plague. This is done by tracking the locusts to their breeding places, and, as soon as the young are hatched, when they can only crawl, spraying them and the surrounding veld with a mixture of arsenic, treacle and water. Arsenic is a poison, and the treacle is sweet. The locusts ravenously eat the treacle and in a little while they die Locusts are much like large grasshoppers. In a few hours a swarm of locusts will eat every particle of green vegetation that it passes over.

8. Memory work.—(*a*) The Negro tribes of South Africa are called Bantus. (*b*) The round Bantu huts have cane frameworks thatched with grass and leaves Dogs, fowls and often a calf or sheep sleep at night in the hut with the family. (*c*) Bantus rub their bodies with oil and red clay, and wear skirts or aprons of soft skins. Gardening is done by women, and cattle rearing by men (*d*) Dancing is the favourite amusement of the Bantus Many of them pay taxes to the government for their huts and land.

9. Exercises.—(*a*) Describe a Bantu (*b*) What materials do Bantus use in building their huts? (*c*) Why do they not use slates, bricks or stone? (*d*) What materials were used in building the house in which you live, and where were they probably obtained?

(*e*) Why do Bantus put fences round their kraals? (*f*) Tell what you would see inside a Bantu hut. (*g*) Say all you know about black children. (*h*) What work is done by Bantu women? (*i*) What work is done by the young men? (*j*) What is the chief food of the Zulus? (*k*) How do they pay their debts? (*l*) What is a Bantu's favourite pastime?

SKETCHES FOR THE BLACKBOARD

THE BANTUS

AGRICULTURAL AXE
KNOBKERRIE
GRAIN STORE

SHIELD AND SPEAR
SNUFF BOX ON A WAIST BELT
SALT BOX

II. SOUTH AFRICA— A TRIP ACROSS THE COUNTRY

PICTURE REFERENCE

GATHERING GRAPES IN SOUTH AFRICA

(Class Picture No 91 in the portfolio)

INTRODUCTION

Build.—South Africa is the name usually given to that part of Africa south of the river Zambezi With the exception of Portuguese East Africa (Mozambique) the whole of this part of Africa is included in the British Empire It consists of·

1 The Union of South Africa, a self-governing Dominion consisting of the Cape of Good Hope Province, Natal, the Orange Free State, and the Transvaal.
2 The South-West Protectorate, which is a Mandated Territory under the government of the Union.
3 The native Protectorates of Bechuanaland and Swaziland, and the Territory of Basutoland, under the High Commissioner for South Africa
4 Northern Rhodesia, under the rule of a Governor and Executive Council, and Southern Rhodesia, a self-governing Crown Colony

South Africa is a solid land mass without peninsulas of any size, or any large islands off the coast The coast line is little indented, and contains few good natural harbours, but several ports have been constructed.

The land mass generally consists of high plateaus, which descend to narrow coastal plains by a series of steps or terraces. The rim of the highest terrace usually towers above the plateau itself, thus forming a range of mountainous land such as the Nieuwveld and the Sneeuwberg mountains in the south, and the great range of the Drakensberg mountains in the south-east Here and there the mountains approach close to the sea, as at Table Bay, which is overlooked by the flat-topped, lofty Table Mountain

THE PROVINCES OF SOUTH AFRICA

The highest part of the plateau is the *high veld* of the Transvaal, which is 6,000 feet above sea level The veld, which is a Dutch word for *field*, is the name given to the extensive, open, temperate grasslands of the plateau. The lower and moister parts of the plateau are known as the *middle veld* and the *low veld*

The middle part of the South African plateau is arid, and is known as the Kalahari Desert The western region throughout, especially that part north of the Orange river, is largely of a desert character This fact is well illustrated in the map (page 454), where it will be seen that the railways and towns mostly extend along the eastern half of the plateau; there are few places of importance west of the Cape to Cairo Railway.

The terrace lands below the plateau edge in the Cape of Good Hope Province are generally dry. They are called *karroos*, from a Hottentot word *karusa* meaning *arid*. The karroos are wide, undulating, treeless plains which have much the appearance of desert land in summer when the soil is parched, the watercourses dried up, and the vegetation shrivelled, with the exception of some low scrubby herbage, commonly known as *bush*. After the rain these arid plains are clothed with a thick carpet of grass and multitudes of flowering plants. Wherever irrigation works have been successfully carried out the karroo soil is found to be fertile and productive

The whole plateau of South Africa has in the north a general tilt towards the east, and it is drained to the Indian Ocean by the Zambezi, the Limpopo and other streams. Towards the south the plateau tilts to the west and is drained to the Atlantic Ocean by the Orange river. The coastal rivers are naturally short.

One of the most striking features of the plateaus is the number of flat-topped hills which, being formed of hard rock, have resisted weathering They are known as *kopjes*, which is pronounced *kop-peys*. The diagram is a section of the country from the Indian Ocean in the south to the Orange river in the north It gives a good idea of the way in which the plateau descends in terraces, and of the way in which the rims of the plateaus rise into mountainous ridges. The height is exaggerated fifty times

In the neighbourhood of Johannesburg in the Transvaal are the richest gold mines in the world; at Kimberley and in the Pretoria district are the world's richest diamond mines There are many coal beds in the eastern districts, and valuable copper deposits in the west.

Rivers.—The chief rivers of South Africa are the Zambezi, the Orange and the Limpopo. The Zambezi is the fourth in size of the African rivers, and the largest of those flowing eastwards to the Indian Ocean. Its length is about 2,200 miles. The source of the river is in a marshy bog some 5,000 feet above sea level. Along the river banks, for the first few miles of its course, are narrow strips of dense vegetation, which gradually give place to open savanna country. For 100 miles the river steadily falls from 5,000 feet to 3,600 feet, then, as far as the Victoria Falls, 800 miles from its source, the basin is practically level As it flows eastwards towards the borders of the great central plateau, it reaches a tremendous chasm in the floor of the earth, and thus the Victoria Falls, the largest waterfalls in the world, are formed.

The Falls themselves are superb The native name for them is Mosi-oa-tunya, which means *the smoke that sounds*. The name presents a vivid picture of the clouds of spray and the roar of the waters. A sheet of water a mile and a quarter wide descends without haste, without pause, solemnly grand, and then suddenly the river seems to stand abruptly on end The Zambezi takes a mighty plunge of 400 feet into a deep narrow chasm, where the waters leap and smoke in their frantic endeavour to escape. Facing the Falls, at a distance of 300 feet, is a vertical wall of rock. This presents an unbroken barrier for the water, save for a narrow gorge about a hundred yards wide. This spot through which the waters roar and seethe is called the *Boiling Pot*. From the Boiling Pot the river rushes on with fury for forty miles along a narrow and deep gorge

DIAGRAMMATIC SECTION FROM SOUTH TO NORTH OF THE CAPE OF GOOD HOPE

(The vertical height is exaggerated fifty times)

The track of the Cape to Cairo Railway is carried over the gorge about 220 yards below the Boiling Pot by a magnificent single-span bridge

For the next 700 miles of its course the river flows through well-marked and sometimes rocky banks, in places there are

rapids which impede navigation at low water Where the river breaks through the plateau rim there are 45 miles of rapids For the last 400 miles of its course to the sea the river is navigable even in the dry season, except in a few places. About 100 miles from the sea the Zambezi receives the drainage of Lake Nyasa through the river Shiré As it approaches the ocean the river splits into a number of branches and forms a wide delta There are many tributaries large and small to feed the main river, and in spite of falls and rapids it is an important highway into the interior. It is reckoned that there are 4,000 miles of navigable river in the Zambezi basin The port of Chinde is situated on one of the delta mouths of the same name.

The Orange river rises near Mont aux Sources in the highest portion of the Drakensberg Range in the north-east of Basutoland. In the rainy season, or after storms, the Orange is a raging torrent, but during the dry season it carries little water to the sea The Vaal and other tributaries flow amid magnificent mountain scenery; the basin of the Caledon, a right bank tributary, is a rich grain-growing district. Below the junction of the Orange and the Vaal, the Orange flows through steep banks for 400 miles in the arid, desolate, southern portion of the Kalahari Desert About longitude 20° E are the Great Falls of the Orange, where the river hurls itself over a steep precipice 400 feet into the gloomy abyss below These falls are higher than the Victoria Falls, and more than double the height of Niagara On all sides there is nothing but riven, shattered rock, sheer precipice and giant buttress. The vegetation of the side stream is hidden by the chaos of rocks near the brink of the canyon, and the scene is one of absolute desolation. The Orange is of little use for navigation, for a sand bar nearly one mile wide obstructs the mouth Owing to its deep gorges the water cannot readily be used for irrigation purposes west of the Vaal, but in the neighbourhood of its junction with the Vaal and at some other places the waters of the Orange are used for irrigation purposes The feeders of the river west of the Vaal become turbulent floods after heavy rains; but later on they dwindle till their beds are left dry in many places, and there are only stagnant pools left to mark the empty watercourses

The Limpopo, or Crocodile river, over 1,000 miles in length, is, next to the Zambezi, the largest river of Africa entering the Indian Ocean It rises on the slopes of the Witwatersrand, and makes a great semicircular sweep across the high plateau. In descending the plateau the river passes through rocky ravines The mouth is obstructed by sand banks. In the rainy season the Limpopo loses a good deal of its water in the swampy region along its lower course, in the dry season the depth in its shallowest part does not exceed three feet. The river is navigable for shallow draught vessels for about 100 miles from its mouth. The river valley is generally unhealthy.

The rivers which flow through the coast lands to the south and east carve their way down the terraces along deep-cut, rocky gorges, which are known as *kloofs* In the wet season they are turbulent streams, which make the fords, or *drifts*, impassable, and during the dry season many are sunbaked watercourses These streams are generally useless for navigation, but more and more reservoirs are being made to store the water at flood times. An immense irrigation scheme has been completed on Sundays river, near Port Elizabeth Here a dam has been constructed, second only in size in Africa to the great Aswan dam of the Nile.

Over the karroo and other arid regions more than 10,000 boreholes have been sunk, and under this artesian well irrigation the value of the land has greatly increased The Graaff Reinet district, south of the Sneeuwberg Mountains, is now one of the richest sheep-grazing and fruit-growing lands in Cape Province.

Climate.—The northern part of South Africa is within the tropics, and no part

lies farther than 35 degrees from the equator, but as the greater portion consists of high plateaus, the temperature throughout is not generally high. The hottest month is January, and the coolest July. The January isotherms show 90° F. in the Transvaal, but as parts of the veld are between 5,000 and 6,000 feet above sea level, the average summer temperature is here about 70° F. Only along the south-eastern coast, and in some of the river valleys, is the climate of a tropical character.

The Drakensberg Mountains on the eastern edge of the plateau intercept the trade winds which blow in summer from the Indian Ocean; the eastern coastlands then receive plenty of rain, but the rainfall is naturally less on the western side of the mountains, and it steadily diminishes across the country to the Atlantic coasts, with the result that the Kalahari Desert and other western parts have a scanty rainfall.

In the cool season the air on the plateau is moving outwards, and prevents the trade winds from crossing the Drakensberg, so that the trade winds then bring rain to the coastal regions only. It is important to remember that during the cool season the "Westerlies" which blow between latitudes 30° and 40° bring rain to the south-west corner, that is, in the Cape Town district These rain-bearing winds have a great influence on the kind of crops that are produced in the south-west. The climate in this part of South Africa is of the Mediterranean type—warm summers and cool *wet* winters.

Generally speaking, the marked feature of the climate of South Africa is its dryness and abundant sunshine The cold ocean current from the Antarctic tempers the summer heat of the western and south-western coasts

CHILDREN'S STORY

A trip across South Africa.—Polly had just come into a small fortune, which was left her by an aunt, whom she liked to think of as her fairy godmother. For five years Polly had been a shop assistant in a large town in England, and had slept with the other girls in a long dormitory over the furnishing departments.

"What are you going to do with your money, Polly?" asked the other shop girls.

"I shall take a holiday," replied Polly.

"Where will you go?"

"Somewhere warm and sunny," was the answer.

Polly hunted up information about tours abroad, thought over each one carefully, and decided that the one she fancied was a tour to South Africa. So, in company with a party of travellers, she sailed to Cape Town.

She was thrilled when from the deck of the steamer she saw in the distance a tall square rock like a mighty tower. They were nearing the Cape of Good Hope, and the giant mass reaching up so high was Table Mountain, whose flat top is often spread with a white, cloudy cloth At its foot stands Cape Town, the gateway to South Africa, and here Polly was given a room in a comfortable hotel.

Cape Town.—The glorious sunshine and clear air made Polly feel bright and strong. She went for walks about the city, looking at the shops and at the strange crowds in the streets People from every country seemed to be walking side by side in Cape Town—black and white and yellow men mingling together—because it is one of the world's great ports of call. The houses were washed white, and palm trees grew freely everywhere. Trams ran down the wide main street, which was lined on either side by tall, stately buildings A few steps beyond the end of this noisy, bustling road lay the Botanic Gardens, quiet and beautiful, and full of curious trees and flowers

Wherever Polly walked she saw Table Mountain peeping at her over the housetops, or at the end of the long streets, and when the south-east trade wind was blowing the "tablecloth" was spread. Polly liked to stand and watch the wisps of silvery white cloud tumble down the face of the mountain

[*Reproduced by courtesy of South African Railways*

CAPE TOWN AND TABLE MOUNTAIN

and rise again There was no other movement; it clung to the "table" like a cloth on the dining table at home, and it was the only cloud in the sky The people of Cape Town were always glad to see the "tablecloth," for when the wind blew, the weather was not so hot They called the south-east trade wind the "Cape Town doctor"

One day Polly went for a ride in the cable railway up the face of Table Mountain In a quarter of an hour she was set down on the top, and from that wonderful height she could see, far below, two great oceans—the Atlantic and Indian oceans—and away eastwards, beyond stretches of vineyards and orchards, rose distant mountain ranges It was springtime at the Cape, and autumn in England. At that time of the year all the open country around Cape Town was carpeted with flowers, and on Saturday mornings wild flowers from the woodlands and mountain sides were hawked by black flower sellers along the pavement in the chief street of Cape Town In the sunshine the blossoms added yet more brightness to the gay scene

The train.—The party at the hotel decided to pay a visit to the great Victoria waterfalls, the largest in the world. Arrangements were made, and all agreed to meet the guide in charge of the journey at the railway station in Adderley Street on the following Monday afternoon Polly arrived at the station feeling very happy and excited She found that the guide was a tall man with a kind, sunburnt face, and piercing eyes Beside him stood his nephew Jock, a strapping young fellow of seventeen Jock was going with

the party as far as a station called *Fourteen Streams*, where he would have to change for Johannesburg.

The train was waiting for them, and at first appeared no different from an English one. It had probably been made at Crewe, in England. Polly soon noticed, however, that the ends of the carriages were open to make small platforms When the carriages were joined, these platforms formed pleasant, airy places, on which to sit and keep cool while enjoying the view. Every face that Polly looked at was brown with sunburn There were black as well as white people, but they all wore European clothes. Many voices were talking in languages that she could not understand Some might be Dutch-speaking farmers returning to their up-country homes, and others might be German or French people going to Johannesburg. She was very interested in a traveller who wore a green, flowing robe and a green cap shaped like a flower pot. "He is a Mohammedan pilgrim," said Jock to her, nodding in the direction of the stranger. "I imagine that he has just returned from Mecca."

At four o'clock the porters hurried them into their carriages with, "Take your seats please!" It was a corridor train with large, airy compartments, which formed sitting rooms by day and bedrooms by night Each compartment had its own washstand, over which a folding table was let down during the day. The dining saloon was like a first class restaurant, and in a very short time they found that the food provided was excellent

They were soon off and the train moved slowly out of the station. Having stowed away their luggage in the compartments, many of the party found seats on one of the platforms in the open air. Polly stood up to get one more view of the sea before turning her back to it. On her left lay the great curve of beach enclosing Table Bay, where lying at anchor and waiting to enter the docks were ships of all nations "Look at the great liner with bright red funnels coming in!" she cried

"That boat belongs to the Union Castle Company," said the guide "Seventeen days ago she left Southampton If she should be the mail boat many English people in Cape Town will be looking forward to letters from home Look back, Jock, and see whether the signal flag is hoisted on Lion Rock, warning everyone that the mail boat is coming in."

"Yes, I can see it," said Jock. "There will be letters waiting for you all on your return to Cape Town."

The Cape Province.—The bay with its shipping was soon left behind and the train was rolling across the Cape flats Polly noticed that it did not travel so fast as an English train, and she was able to have a good look at everything in passing. Jock now explained to her that the Cape ended in a peninsula, and the first part of their journey was across a flat neck of land between two oceans. Polly had just bid farewell to the Atlantic The Indian Ocean was out of sight sixteen miles away on her right. Looking out on that side she saw the chain of mountains forming the peninsula They were a lovely purple colour, very clear to the view Many times during the journey she found that she could see much farther ahead than in England, and the horizon stood out very sharply.

The flats were now left behind and mountains were seen everywhere on the skyline Polly looked about for fields or meadows, but there was none The railway lines were not fenced in. They were travelling through a country covered with stunted bushes as high as a man's knee Here and there were a few trees. No grass grew on the open ground, which looked like a sandy waste

"This is a much drier country than England," said Polly to Jock

"Oh yes," he answered "See how small the leaves of the bushes are. Those patches of red and yellow are clumps of heather with waxlike flowers I have sometimes walked here with Uncle Ben (who is our guide) and all the way we have been followed

by sweet scents from the plants trodden underfoot. In marshy spots I have gathered armfuls of beautiful Easter lilies growing nearly as tall as myself."

"Oh, I can see some deer!" broke in Polly, as she caught sight of a herd of springbok grazing. While she watched them they were suddenly alarmed, and springing away with curious high leaps were soon lost to view.

"There are few wild animals now in the Cape Province," observed the guide "The zebra, giraffe, lion and hippopotamus have disappeared long ago. Some were shot for food and others for their skins The dangerous ones which killed men and cattle were hunted and destroyed In the distant mountains men sometimes find baboons and there are still plenty of small antelopes "

Since leaving Cape Town Polly had not caught sight of any people or villages, but now she saw a white-walled farmhouse hidden away in a valley, and farther on the train passed another.

"They are Dutch homesteads," said the guide "In the Cape Province nearly all the farmers are Dutch and very kindly they are, too I stayed with a family hereabouts when I was a youngster, and I remember being taken for rides in a Cape cart with a hood like that of a perambulator. The horse was driven by a black 'Cape boy.' When getting supplies from Cape Town the old farmer used to send a wagon drawn by twenty oxen. He is dead now, and his sons use motor cars and lorries for their work."

TREKKING IN SOUTH AFRICA

Vineyards and orchards.—The train had now been running for an hour and was more than thirty miles from Cape Town It was gradually climbing all the time, keeping to the valleys as far as possible. The country was more hilly and the bushes looked greener, for a river was not far off. Soon Polly passed a vineyard, and then caught sight of numbers of vineyards running up the steep sides of the hills The river was crossed by an iron bridge, and then for many miles the train ran through fruit-growing country In all the valleys were fruit farms where vineyards and orchards were tended by black "Cape boys." Among the orchards nestled the white farmhouses with thatched roofs and quaint fronts.

"I imagine that you have often enjoyed some fruit from these parts without thinking of the place where it was grown," said Jock, smiling "Many of the grapes, peaches, apricots and oranges for sale during the English summer come from South Africa. Hundreds of tons of grapes are also dried

and packed as raisins The most famous district is the Hex River Valley, which we shall run by later on."

The train now passed many small stations and towns—some of the towns quite a long way from the stations. Streams spanned by bridges were frequent, there was no lack of water in this part of the Cape Province At Worcester junction Polly saw an ostrich farm, the great birds strutting about their sandy enclosure reminding her of hens in an English fowl run The ostrich farmer was carrying a stick with a bunch of thorns at the end

"Of what use are the thorns?" enquired Polly.

"The male ostrich is sometimes dangerous," said Jock, "and the farmer protects himself by pushing the thorns in front of the bird's head."

Worcester was soon left far behind and now they drew near to the Hex River Valley.

"Look over on your left," said Jock. Polly did so, and found herself travelling towards a district that seemed to have been splashed all over with brilliant patches of colour from the brush of some giant artist Blue mountains encircled this lovely valley, and distant waterfalls sparkled like silver in the sunshine Many vineyards and orchards and white farmhouses were here, for the rich soil produced splendid fruit

"How has the ground been coloured in that wonderful way?" exclaimed Polly, both delighted and puzzled

Jock grinned cheerfully in reply, "Wait till we get a little nearer, and you will see," he said

A few minutes later Polly discovered that the glorious colours were masses of flowers, more beautiful than any she had ever seen in her life.

The mountains.—Suddenly the travellers were aware of a great wall of mountain rising up in front of the railway track.

"Surely we shall have to stop," thought Polly in a fright, but the train began to climb instead The line wormed this way and that, through tunnels, up steep slopes and round sharp curves Soon Polly could look down on the river and orchards far below. All around were mountains—weird, grey monsters clothed here and there with patches of yellow flowers and pink shrubs. The night fell and blotted them out Porters brought along bedding, the two wide racks above and the seats below made four comfortable bunks in the compartment Shortly afterwards Polly was asleep.

The Karroo.—In the morning the air felt colder and keener, for they were now travelling across the Great Karroo, nearly three thousand feet above the sea. Polly thought it rather like a desert as she looked at the rails gleaming across the lonely, brownish plains The train passed hill after hill called *kopjes*. The earth was scattered with stones, and dark patches of scrub showed here and there. Wherever water had been found, fields of maize or lucerne were growing, and flocks of merino sheep and Angora goats fed on the rough herbage

"Very little rain falls on the karroo," said Jock "The air is so dry that books are apt to open as they do when held too near the fire."

The train passed many small stations with English and Dutch names, and at the side of the line Polly saw great stacks of wool in bales waiting for the freight train to carry them down to the coast.

"All these long, dull miles of karroo are very wearying," said Polly, smothering a yawn. "They are dull indeed to strangers," replied Jock, "but you ought to talk to Uncle Ben on the subject. Tell us what you think of it, uncle"

"The karroo? Ah, a fine place," said the guide, looking out over the lonely waste "It keeps its riches hidden from passers-by Diamond miners know where to find them, Angora goats that live on the karroo scrub supply the world with mohair from which plush curtains and braid and cloaks are made; and ostrich farms have brought large fortunes to their owners Invalids

[*Reproduced by courtesy of South African Railways*

LITTLE KARROO—SHEEP ON TREK

also come here to be cured of chest trouble You cannot feel its charm in the daytime, but the karroo is beautiful when the sinking sun tints hill and plain with all the colours of the rainbow. In the evening glow when native fires blink, or the smoke rises from some prospector's camp, it is good to be here Perhaps its greatest charm is felt in the starlight when springboks graze under the Southern Cross"

The train had been climbing gradually all the time. Now the track became very steep again, and led up over the slopes of the Nieuwveld Mountains to the northern karroo

"These mountains are a branch of the great Drakensberg or Dragon Mountains, a mighty line of peaks and tablelands, which runs like a spine down the eastern side of South Africa," said the guide He added that the Drakensberg made a watershed which separated the rivers flowing westwards from those flowing to the east coast

The Orange river and Orange Free State.—At length, when 570 miles from Cape Town, Polly saw water again, for the train crossed the Orange river by a fine bridge of nine spans After such a long journey over the karroo it was strange to hear the rumble of the carriages over the bridge fifty feet above the water. Now the travellers had left Cape Province behind and entered the Orange Free State.

"Why is the bridge so high up over the river?" asked Polly of the guide

"The water is not always so far below," he answered "The Orange river flows westwards and always has water in it, because it rises in the Drakensberg and is fed with melting snows Some South African rivers, however, become dry for the greater part of the year, and then the railway bridges over them do not seem necessary, but during the storm rains of the summer season the water often rises nearly to the levels of the bridges."

"I can tell you a tale about South African rain," put in Jock "A district in the east of the Orange Free State had seen no rain for two years, and the sheep had crowded round the farmhouses bleating piteously for water. Children were playing in the dry bed of the river near the village when thunderstorms burst on the hills several miles away. The river came down with a rush, its front wave looking like a high wall, and before the children could get out of the river bed they were swept away by the raging torrent."

The diamond country.—While listening to the conversation Polly forgot the view, but now on glancing out of the window she found that the train was again running through stretches of veld containing tufts of bush and scattered kopjes

"This part of the country saw most of the fighting during the Boer War," said the guide, and later he pointed out a kopje round which a battle had been fought. Farther on Polly saw two fine monuments in memory of the Boers and Britons who had fallen She learned also that this was the famous diamond district of South Africa, and soon they were drawing near Kimberley, a town which owed its rise to the numbers of people who came to make their fortunes seeking for diamonds. On either hand Polly saw great mounds of rubbish from which diamonds had been sorted She also saw the long mine buildings where machines were hard at work, and busy trucks and lorries rumbling along roads deep in dust.

"Kimberley is a terrible place for dust-storms," said Jock "When I was staying there last year I came in for one. My friend and I were returning home after a ramble round the outskirts of the town, and I happened to remark that the veld seemed rather blowy.

"'What do you mean?'" said my friend

"'Well, look at all those little whirlwinds blowing up rubbish into the air,' I said, pointing back the way we had come. He glanced round quickly, then yelled, 'Home! run for your life!' and bolted for home with me at his heels

"As we dashed down the street I felt a puff of wind play round me, followed by a dead calm. Two or three men ran by us and some dogs who were also making for cover At last we got indoors My friend locked and bolted all the doors and windows, and in two minutes the storm burst. It rattled and banged doors and windows all along the road, tore off the tiled roofs of houses, blew down trees and made a hideous din The air grew yellow and red, and finally dark as in a black fog, and the rain streamed down in sheets When the storm was over the rooms were covered with sand I had grit in my hair and between my teeth, and the dusty road outside had turned into a river."

"I hope that no such dust storm will overtake us in the train," said Polly "After hearing your story I shall not be sorry to leave Kimberley behind me"

"I think it is time to 'turn in' now," said the guide, smiling. "I will retire to my compartment and wish you 'good-night'"

"It is 'good-bye' for me," said Jock, holding out his hand to Polly "We shall stop at Fourteen Streams when you are asleep, and there I have to change into a train for Johannesburg"

Polly wished Jock a hearty farewell, and off he went to find his uncle.

The Transvaal.—Soon after seven o'clock on the next morning—Wednesday—the train ran into Mafeking At breakfast time the guide told Polly how Sir Robert Baden-Powell had defended Mafeking during a seven months' siege in the Boer War.

"Mafeking is 6,000 feet up on the high veld of the Transvaal, where men mine for gold at the Witwatersrand on which stands Johannesburg," he continued "Here you are hundreds of miles from any seaports, and have come 900 miles on your way."

Beyond Mafeking, as the train went farther north, the country became more wooded There were no forests; but the bush, the

green open glades and hills were a pleasant change It was certainly getting warmer, or perhaps the scanty dress of the people made Polly think so At several small stations they were selling fruit and curios to passengers, and Polly felt that she was really in Africa at last

Rhodesia.—At eight o'clock on the next morning the train arrived at Bulawayo in Rhodesia, and the party got out. Polly spent the morning looking round the town She saw numbers of people of the Matabele tribe, but not in their terrifying war dress. The "boy" who trotted in the shafts of the jinricksha that she hired wore a poor copy of the head-dress in which Lobengula, a noted Matabele chief, once went to battle. Other men were working as porters, waiters, gardeners and roadmakers. She saw the statue of Cecil Rhodes, the great Englishman who spent his life in working for South Africa, and after whom Rhodesia is named. At the town hall she learned that on the spot where it is built once stood the kraal of Lobengula who sat and judged his tribe from there.

At one o'clock the party was in the train again and on the way to the Victoria Falls. The travellers now journeyed through forest land containing many open spaces. It was just as if some gentleman had given them permission to pass through his beautiful park. Numbers of trees were in bloom and the undergrowth was spangled with flowers. Graceful palms grew in the open spaces. The train crossed a tributary of the river Zambezi and then ran on straight ahead for mile after mile. When passing through a station called Wankie, Polly saw an engine drawing a line of trucks loaded with coal It seemed a strange sight in that part of Africa. The guide told her that Wankie was the chief coaling centre in Rhodesia.

The Victoria Falls.—Polly was up at sunrise the next day in her eagerness not to miss anything. The train was due to arrive at the Falls at half past six in the morning, and from the carriage window nearly an hour beforehand Polly could see in the distance five columns of mist known as the "five fingers" The distant mutter of the falling water gradually increased to a roar that swelled into thunder The train stopped at the Falls, and the party went to an hotel, from which they could see a great railway bridge spanning the deep gorge of the river a little distance from the Falls It is called the Cape-to-Cairo bridge and it is the highest bridge in the world The dream of Cecil Rhodes had been for a railway to be made from Cairo in North Africa to Cape Town in South Africa. The middle portion of this railway is not yet laid, but trains can cross the Victoria Falls and journey as far north as the river Congo.

The Falls were discovered by David Livingstone. They are made by the river Zambezi falling over the steep face of rock a mile wide and nearly a quarter of a mile high—that is, higher than St. Paul's Cathedral which overlooks London. The river falls from this height into a narrow channel called "The Boiling Pot," where the mighty waters leap and smoke in their frantic efforts to escape into the deep, winding gorge beyond. Great jets of vapour mount up from the Falls and turn to rain on the opposite bank, where a rich green forest has grown up with fairylike palms, mosses, ferns and orchids in it. Beautiful rainbows shine across the Falls. Because of the great roar, which seems to come from the clouds of vapour hiding the water from view, Africans have named the Falls, "The Smoke-that-thunders"

Polly went with her friends into the Rain Forest to obtain the best view of the Falls, and in spite of mackintoshes they were soon all wetted to the skin with the warm rain which never ceased falling. So they had to go straight back and change into dry clothes. Polly stayed four or five days at the Falls, and she went for evening trips up the river Zambezi in a canoe paddled by a chocolate-skinned boatman. Above the gorge the river was about a mile wide and

dotted with islands The banks were edged with bamboos and reeds, and overhung with masses of scarlet, purple and white flowers of climbing plants She loved to see the sun set on the great water, and sometimes she caught sight of a crocodile lying on the bank of an island.

On the return journey the party stayed a whole day at Bulawayo and went by motor to the Matoppo Hills. There, on the summit of the highest peak they saw the grave of Cecil Rhodes—a marble slab, with huge lumps of granite placed round it

Exactly a fortnight from the day of leaving Cape Town, Polly was back again at the hotel, having travelled by train nearly 3,000 miles.

TEACHING HINTS

1. Map.—Let the children follow on the map, Polly's journey from Cape Town to the Victoria Falls and make the story real by supplying them with as many illustrations as possible. (See Class Picture No 92)

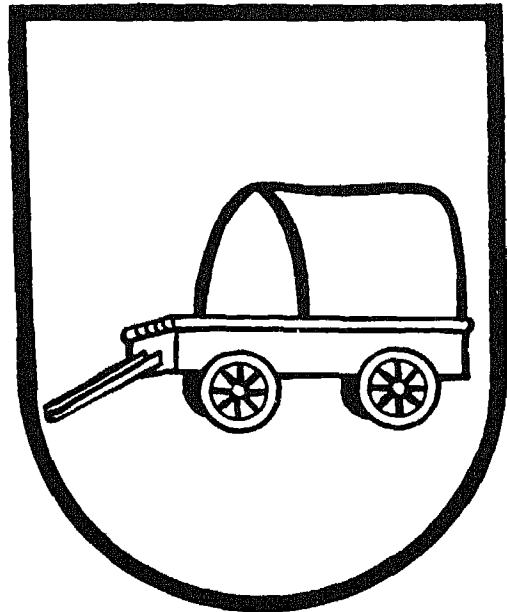
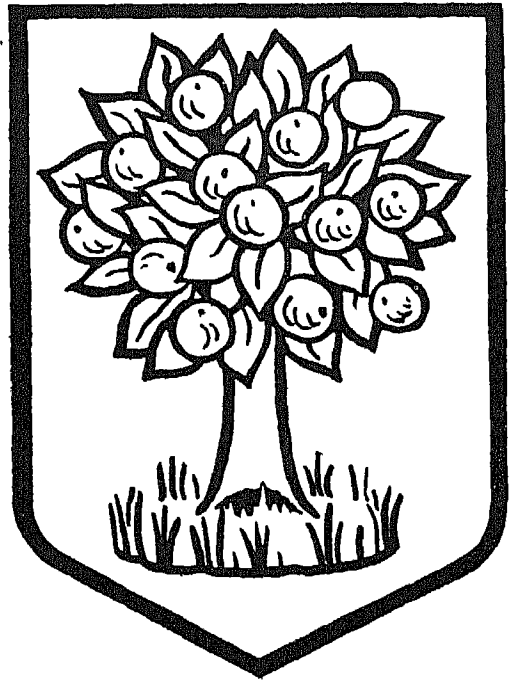
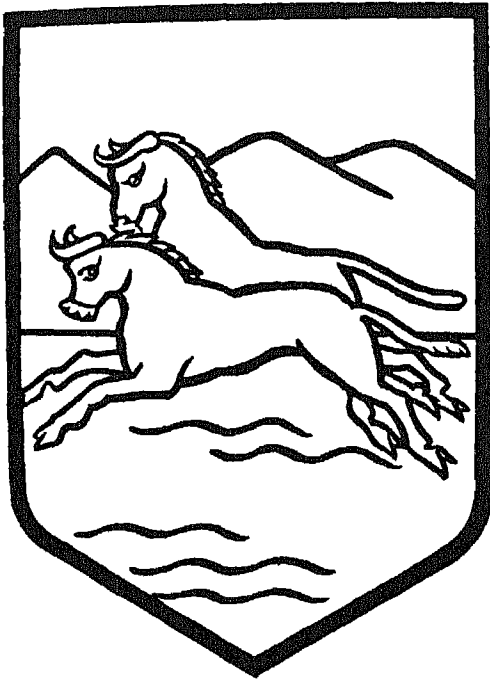
2. South Africa and Australia compared.—(*a*) *Build.* Compare the position of the Union of South Africa with that of Australia Note carefully that the Union and Australia have each much the same position on the globe as regards latitude. Australia extends a little farther both north and south, but the bulk of the area in each case lies between latitudes 20° and 35° S Compare the two regions with regard to extent and relief. The Union is small in comparison with Australia, being not much more than a quarter of the size of the island continent. In each region there is a plateau area with its highest parts on the eastern edge, but, with regard to relief, there is little else in common In Africa the plateau is high and fairly level, but in Australia it is low and contains a considerable area of lowland, a part of which is below sea level. The rivers of each region are of little use for commercial purposes. Both the Union and Australia have a small number of good harbours considering the great extent of the coast line in each case

(*b*) *Climate* Each country is under the influence of the south-east trades on its eastern shores, and has a reliable rainfall with a tendency to a summer maximum on a narrow coastal strip. This rainfall steadily decreases inland, until the north-western shores become regions of drought Each country receives the westerly winds in winter on its south-western extremity, and has, when those winds prevail, the Mediterranean climate of winter rain

(*c*) *Industries* In the Union, as in Australia, mineral wealth has played a great part in the development of routes and the growth of towns, but in each, farming has ultimately become the most important occupation.

3. Veld.—The two chief types are the grass veld and the bush veld The former is under the influence of summer rains and is found towards the north-east, while the latter, having winter rain, is found towards the south-west The veld is rich in lesser beasts of prey—jackal, lynx, leopard, and wild cat. (Note the need for stockades or kraals for keeping out wild beasts)

4. Karroo.—The karroos are fairly dry regions but they have a wonderfully clear, bracing atmosphere They are particularly healthy regions for people suffering from chest troubles

5. Sunshine.—It is important to notice that regions of deficient rain, and those of winter rain, have a high percentage of possible hours of sunshine Lack of rain means cloudless skies There is a very high percentage of sunshine in the Union of South Africa, which compares very favourably with many other areas of the world. The Union is a typically sunny land and the South African spends much of his time out of doors and is fond of all forms of outdoor sport There are none of the dull drab

PUBLIC ARMS

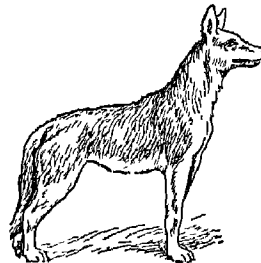
NATAL (BLACK WILDEBEEST OR GNU)
CAPE OF GOOD HOPE (FIGURE OF HOPE resting upon a Rock)
ORANGE FREE STATE
TRANSVAAL (TREK WAGON)

days of northern climes, and the only monotony can come from continued fine weather

6. Coast line.—The extraordinary regularity of the coast line of South Africa is one of its most characteristic features The regularity of the coast and the proximity of the plateau of the interior result in an absence of good natural harbours. Table Bay was unsafe until an artificial breakwater was built Mossel Bay and Port Elizabeth are merely open roadsteads East London harbour is small, and it can be kept open for large vessels only by constant dredging. Durban, however, has a good harbour. The bar, which was formerly a handicap, has been dredged to allow the entrance of ships, and the port is used by all vessels rounding the Cape of Good Hope

7. Rain storms.—In the interior regions of summer rainfall thunderstorms are common, and most of the precipitation takes place in that way. Short torrential showers, accompanied by violent lightning and thunder, are characteristic of inland regions. Hailstorms are almost confined to the areas of summer rainfall, and they are extremely rare in the winter rain areas They are particularly common on the high veld between October and January The torrential character of the rain in the interior means that much of it serves little useful purpose. It rushes away rapidly in the water channels and carries with it large quantities of valuable soil Tree planting and the construction of dams are doing much to check this destructive process of soil erosion.

8. Memory work.—(*a*) Cape Town stands near the Cape of Good Hope. Behind Cape Town towers Table Mountain (*b*) South Africa is a land of sunshine and cloudless skies. In spring the countryside is covered with wild flowers. Orchards and vineyards lie around Cape Town (*c*) The karroo is a high tableland on which sheep are reared. (*d*) Many of the rivers are dry for six months of the year Rain falls in violent storms. (*e*) The Victoria Falls are on the Zambezi river

9. Exercises.—(*a*) Tell all you know about Table Mountain. (*b*) Why are houses painted white in South Africa? (*c*) Why are men of many different races found in the streets of Cape Town? (*d*) What did Polly see from the top of Table Mountain? (*e*) Describe a South African train. (*f*) What kind of country did the train run through on leaving Cape Town? (*g*) Tell all you know about the karroo (*h*) Tell all you know of South African rivers (*i*) What is a *kopje*? (*j*) For what is Kimberley famous? (*k*) What is found near Johannesburg? (*l*) Describe the country between Bulawayo and the Victoria Falls (*m*) What did Polly do during her stay at Victoria? (*n*) On what river are the Victoria Falls? (*o*) Describe the parts of Polly's trip that you would most like to see yourself.

JACKAL

III. SOUTH AFRICA—INDUSTRIES

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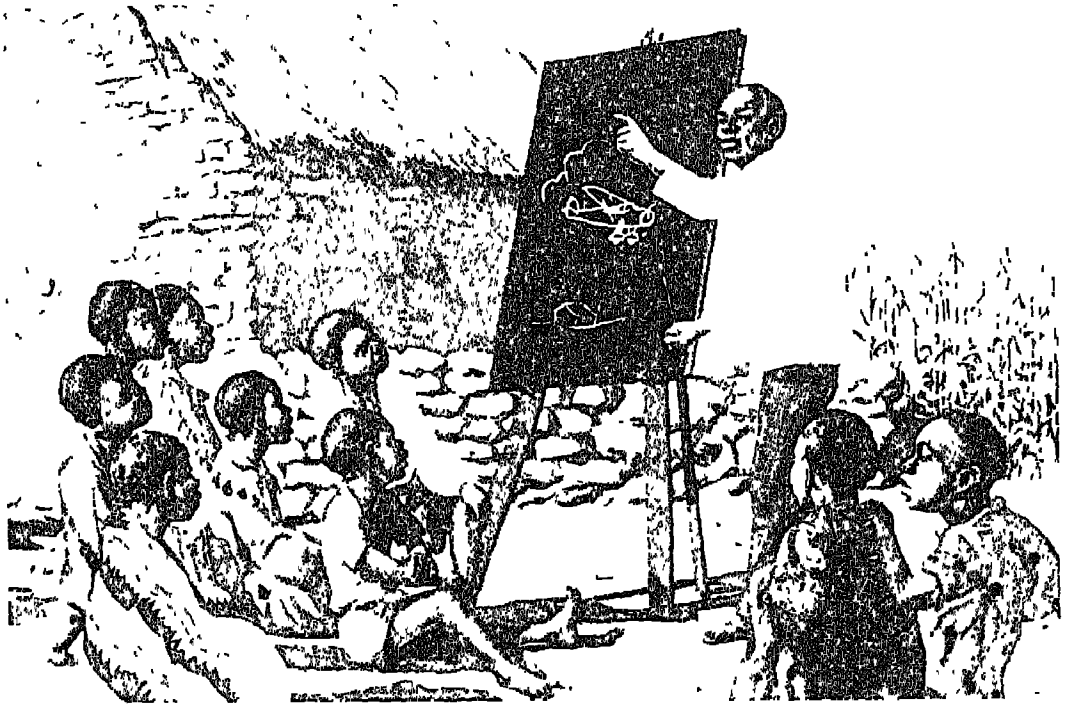

A VILLAGE SCHOOL IN BASUTOLAND

(Class Picture No 92 in the portfolio)

THE above illustration shows the top half of the Class Picture—A Village School in Basutoland Points to note are the highland nature of the country and the local materials used in the building, the few boys, suggesting long distances to walk along mountain paths, the maize growing in the school garden, some boys wearing coloured blankets, the national costume made from the wool of local sheep, the interest of the boys in the teacher's drawing of an aeroplane which has passed overhead

INTRODUCTION

From the days of the first settlers South Africa was mainly an agricultural and pastoral country, and, notwithstanding the great importance of the mining industry in certain parts of the Union to-day, these industries are still of first class importance. In the development of any new country's resources pastoral work, if the circumstances permit, forms the pioneer method of farming Nature supplies the conditions favourable to success, and close settlement of the country is not necessary to stimulate the industry. With the growth of the population and the development of routes, more intensive farming is undertaken, and crops suitable to the climatic and other conditions of the country are produced. Mineral deposits, as soon as they are located,

serve a useful purpose in the development of a new country; and ultimately attention is given to the establishment of a manufacturing industry based upon the products obtained from the other industries of the people For success in the pastoral industry the country must supply cheap land, good grazing all through the year, and a suitable water supply.

Some measure of the importance of the pastoral industry in the Union of South Africa may be obtained from the following numbers (given in round figures):

Cattle ..	10,000,000
Sheep	43,000,000
Goats (Angora)	1,000,000
Goats (other)	6,000,000
Ostriches	32,000

The chief products obtained from other branches of farming are.

Maize .	3,837,000,000 lbs.
Wheat	1,200,000,000 lbs
Sugar	495,000,000 lbs.
Tobacco ..	22,000,000 lbs
Millet .	178,000,000 lbs.

The type of farming carried on is largely determined by the distribution and period of the rainfall It has already been noticed that, as the north-west is approached, the rainfall steadily decreases until desert conditions prevail, that the east has a summer rainfall decreasing in quantity towards the interior, and that the south-west corner has a winter rainfall The two distinct climatic conditions which prevail, summer and winter rains, result in vital differences in the crops that can be grown.

The most characteristic feature of the winter rain area is the production of the vine and of fruit.

Except where the rivers can be used for irrigation, the only farming practicable on the karroo is sheep, goat and ostrich farming The karroo is the true home of the ostrich, and ostrich farming is most intensive round Oudtshoorn. The karroo bush is a more suitable food than grass, and an abundance of bush accounts for the success of the industry.

The most extensive agricultural area in the Union is the veld. Maize is the principal grain crop and the high veld is the chief area for its production. Wheat is not a great crop, and sufficient is not produced to make South Africa self-supporting. Many kinds of millet are grown by the Bantus, but European farmers pay little attention to such cereals. The hot wet parts of the east coast strip produce nearly all the sugar of the Union, and tobacco is grown on the high veld, in the south-west, and in Natal.

Wool.—The breeding of sheep is one of the oldest and most important industries in South Africa. As early as 1654 the Dutch East India Company sent to the Cape sheep from the vast flocks in Holland, and during the seventeenth and eighteenth centuries merino sheep were also introduced into the country. During the early part of the nineteenth century the merino breed of sheep was permanently established as the basis of the flocks In 1804 there were only half a million sheep in South Africa, but the industry has so prospered that, to-day, the Union ranks next to Australia, in the empire, for the size of its flocks

The sheep are found in all the fairly dry parts of the country, but the Cape Province and the high veld contain the largest numbers

Almost all the Union clip of wool is shipped overseas, principally from Durban, Port Elizabeth, East London, Mossel Bay and Cape Town

The fat-tailed Cape sheep, the native variety, gives the best mutton, and the merino breeds give the best wool.

The South African sheep farmer has to overcome many difficulties in his occupation. Large areas, per sheep, are required as pasture land for the flocks, and the sheep farms are therefore very extensive. On the karroos the number on a farm sometimes

reaches ten thousand sheep Near Cape Town the farms are much smaller, but they are noted for their production of mutton from the Cape sheep In the better parts of the karroo, near King William's Town and Somerset East, the best merino wool is obtained

Shearing begins in October and the wool is sent to areas with a good supply of water, such as Uitenhage, for washing The Union is not well supplied with rivers, and the lack of water presents a difficulty to the farmer

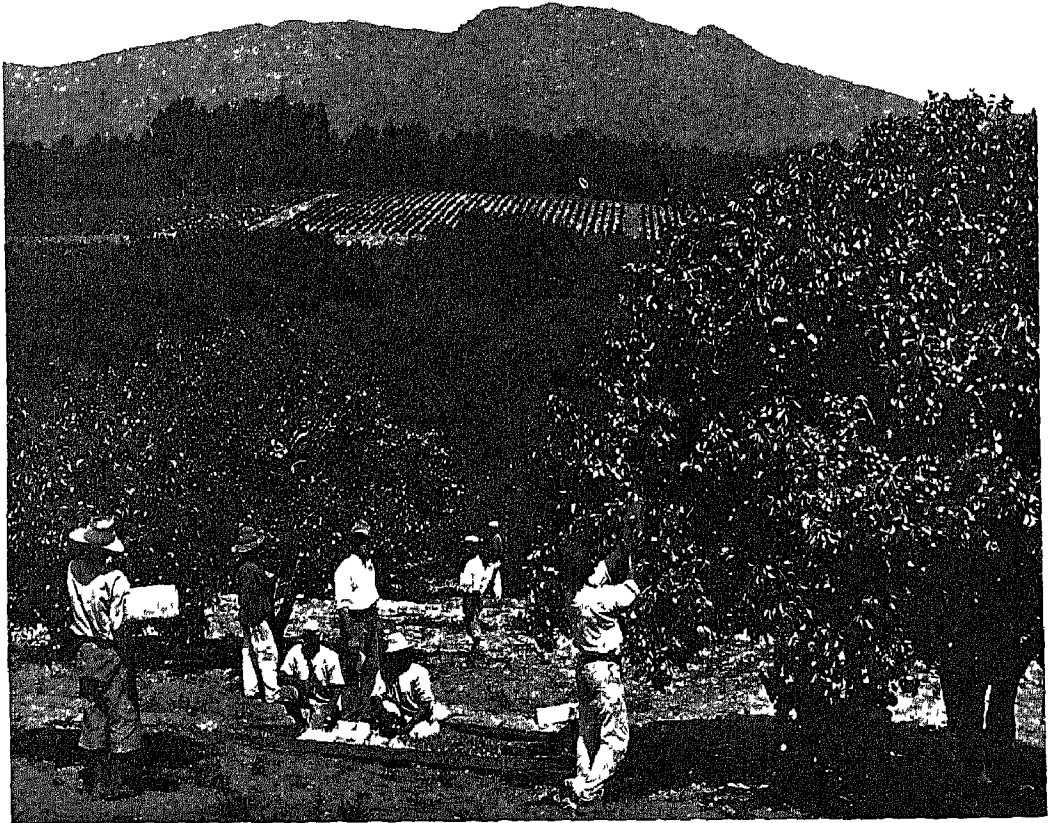
The heat and comparative dryness of the summers in the sheep rearing areas tends to promote disease in the flocks, and this also adds to the difficulty of the farmer's work

Maize.—Maize is South Africa's chief cereal product and it forms the staple article of diet for the mass of the native population It is also produced as food for cattle and for export. Its production is one of the industrial mainstays of the country

There is a well defined maize zone in the Union of South Africa It is not a "dry" crop, and cannot grow in regions subject to drought or very small rainfall—this shuts out considerable areas of the west from its production. It requires considerable summer heat accompanied by fairly good rains at regular intervals for the most constant growth and best development—this clearly shuts out the extreme south and the south-west from the cultivation of maize Suitability of climate and soil limit the maize zone to what is called the "Maize Triangle" on the high veld, in the southern part of the Transvaal and the northern part of the Orange Free State. The triangle has its vertices at Ladybrand, Lichtenberg and Bethel, and its centre at Heilbron The maize triangle contains thirty-one out of the thirty-five grain elevators assigned to the maize district This great maize area is said to have special advantages over the famous corn belt of the United States The growing season is longer by more than a month, and the drier atmospheric conditions produce a grain with a lower moisture content The grain is therefore less liable to injury during transit to the markets of the world

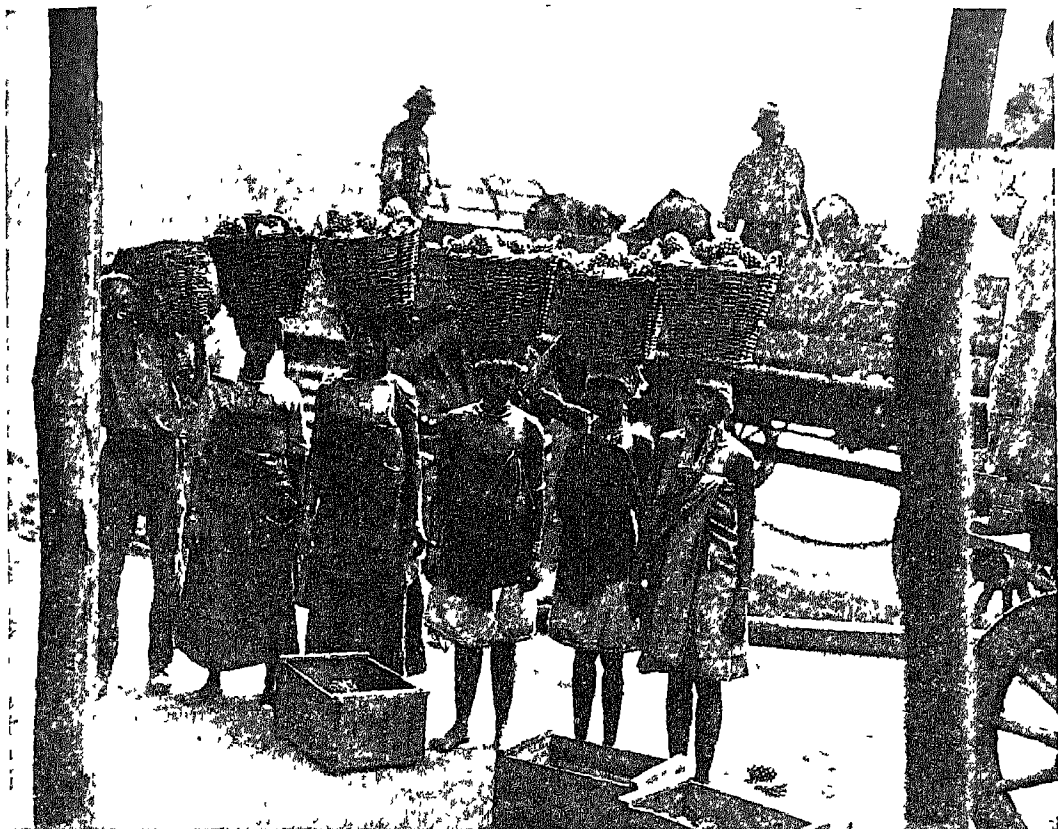
Labour is plentiful and cheap in the maize area of the Union, and this is a further stimulus to production The elevator system has aided the farmer, inasmuch as it enables him to store his grain and not dispose of it at a low price as soon as he has reaped it. Durban is the chief port for the export of the maize which is sent overseas, sixty-three per cent of the total export leaving that port. Cape Town deals with about half the quantity exported from Durban

Bantus generally supply the labour on the maize farms, and the ox is the draught animal employed for farm work The South African farm occupies, more or less, an isolated position Much work falls to the woman of the farm She has to see that surplus fruit and vegetables are preserved during the summer months to provide for the family during the winter The Africans make efficient servants. Their needs are few and they are a contented and happy people

Fruit.—The fruit-growing industry dates back to the early days of the occupation of the Cape, but there was no great advance until the end of the nineteenth century From the beginning, however, the western province of the Cape of Good Hope was found to be suitable for the production of grapes, peaches, apricots, plums and pears. An export of these fruits was early established In the south-western districts the essentials to successful fruit growing are found The rainfall is regular and abundant, the soil is fertile, and transport facilities are good The fruits are produced when no other supplies of such fruits, except from hothouses, are reaching Britain and other parts of Europe Most of the best orchards in the south-western district are not irrigated, the normal rainfall being sufficient The Dutch East India Company, in their trade with the East Indies via the Cape of Good Hope, carried a great deal of brandy obtained

[Reproduced by courtesy of South African Railways

PICKING PEARS

from France They introduced the vine into Africa with the idea of producing the brandy themselves The French Huguenots, who had settled in the Cape, had come mainly from the wine districts of France, and they took a great part in the cultivation of the vine in Africa in the early days The vineyard area is mainly in the hinterland of Cape Town, and about a hundred million vines are now established in the vineyards. The vines are grown to provide fresh fruit, wine, brandy and raisins Large quantities of table grapes are exported, but the Cape wines do not figure very prominently in the list of exports

The south-western corner, near Cape Town, is famed for its peaches, plums and pears, especially pears Stellenbosch, Paarl and Groot Drakenstein, in the orchard area near the Cape, besides being eminently suited for fruit growing are attractive residentially They are well placed for the shipment of their produce from Cape Town. Some of the largest orchards are found on the high veld of the Transvaal, Orange Free State and Natal In this orchard area the rainfall

[Reproduced by courtesy of South African Railways

TRANSPORTING PINEAPPLES

is mainly in summer, the summers are fairly hot, and these conditions are favourable for fruit culture.

The coastal belt from the Cape Town area to the north of Natal is, in most places, suitable for orange growing; but, to obtain the best results in the south and south-western regions, irrigation is necessary The crop is harvested in the period from June to November and reaches the European markets during the summer, when the world's supply of oranges is at its lowest The fruit is transported in cold storage and arrives at the end of its journey in beautiful condition

Although the orange is the chief of the citrus fruits of South Africa there is a small production of lemons and naartjes The naartje is like a tangerine and is a favourite for dessert.

In the hotter east coast region bananas, mangoes, melons and pineapples are produced on a small scale.

The South African grapefruit is becoming very popular in Europe, and large quantities are now exported from the Transvaal.

Dried fruits are produced in many parts of the Union, but those exported come mainly from the neighbourhood of Cape Town There is also a considerable production of jams, jellies, fruit juices and pulp

Feathers.—Ostrich farming is no longer an important industry in the Union of South Africa The demand for good feathers has almost ceased owing to a change of fashion in women's dress

Farmers, however, still maintain fair-sized flocks, although they have been much reduced from former dimensions, in the hope that, by some caprice of fashion, a great demand for feathers will once more come about Certain districts only, on account of peculiarities of soil and climate, are found to be favourable to the production of plumes of the highest value. Oudtshoorn, Uitenhage and Albany are the centres of the best districts. In the ostrich area lucerne (alfalfa), necessary as a food to produce the best feathers, grows abundantly under irrigation, and ostrich farming can be carried on only where lucerne will grow freely. It should be noticed that ostriches flourish best in dry regions, and that the Cape area produces most of the ostrich feathers of commerce. The necessity for irrigation to provide food for the birds has led to the growing of tobacco and the rearing of poultry in conjunction with ostrich farming

CHILDREN'S STORY

Do you remember the story of the young man who wrestled with Hiawatha? He was—

"Dressed in garments green and yellow . .
Plumes of green bent o'er his forehead,
And his hair was soft and golden"

Hiawatha killed him, buried him lightly and kept the soil above his grave soft and free from weeds, until at length—

"A small green feather
From the earth shot slowly upward,
Then another and another,
And before the summer ended
Stood the maize in all its beauty
With its shining robes about it
And its long, soft, yellow tresses."

Hiawatha told his people that the maize was a gift of the Great Spirit. He taught them to grow fields of it. They feasted on the soft, juicy cobs in summer, and when in autumn the maize ears were ripe and hard, the people stripped them from the withered husks and stored them for winter food

Red Indians are not the only people who grow maize, however Notice in the picture the crop grown in the school garden by the Bantu boys! The Bantus in the south-east of Africa live chiefly on mealies. The women cultivate the fields around the native villages, and very graceful the growing maize looks, standing up tall and straight with its pretty, feathered crown and yellow tassels hanging from folded green sheaths. Sometimes, for a special treat, the young green cobs are boiled and eaten all milky and delicious. The older cobs that are ripe and golden are ground into flour, or, if they are not too dried by the sun, they are baked in the ashes of a glowing fire Native children are fond of maize pudding. We put currants into our suet puddings, but an African mother makes a pudding of green vegetables all mashed up, she sprinkles grain through it, and the result is an African child's plum pudding!

Great plantations of maize are cultivated in the east of South Africa (the Transvaal and Orange Free State), where rain falls plentifully during the growing season and there is a hot sun to ripen the grain afterwards Indeed, so suitable is the weather that the maize grown in South Africa is the finest in the world Africans tend the mealie fields for small wages When the ripe grain has been harvested, it is taken away in boxcarts drawn by oxen to the nearest elevator, and the farmer is paid for it by weight From the elevator it is spouted into special railway trucks like large bins, and is taken by train to one of the South African ports Here it is stored again into elevators until the time comes for it to be spouted into ships' holds and carried overseas. Millions of pounds of maize are sent away from South Africa every year. Some is

ground into cornflour, some is used in the manufacture of starch; and a great deal goes to the feeding of livestock. The pigs that fatten on maize afterwards become first-class bacon.

Ostriches.—South Africa is the home of the ostrich, whose beautiful, curling feathers are used for adornment by people in many lands. At one time all ostriches were wild They lived in the bare, Kalahari desert of South Africa, and when running with wings outstretched they could race any animal pursuing them. As ostriches always run in great circles, however, hunters could cut across their path and shoot them.

The large, creamy-white eggs were laid in a hole scraped out in the sand, and often as many as twenty eggs could be found in a nest. They were warmed by the sun during the day, and at night the father ostrich sat on them When the eggs had hatched, the parents were very proud of their big family, and watched the chicks carefully If they went for a walk, father in his beautiful black coat with white lining and white wing tips would lead the way, the chicks followed him; and mother in her "grey-brown feather costume" walked last and kept an eye upon her brood. Thus the ostrich family were on guard against attacks from jackals, wild cats and hyenas. They ate grass and leaves, spiky desert cucumbers, wild melons and sometimes small birds and reptiles.

The native Bushmen of the desert are very fond of ostrich eggs, and they take all that they find. They make small holes in the shells and suck out their contents. Then they use the eggshells as water holders The women pour water into them from the hollows of their hands. When the shells are filled, the holes are stopped with plugs made of tightly rolled, greased grass which prevents leakage of water, and thus the people are provided with drink for their journeys through the hot desert. They scratch pictures of birds, houses and the moon on the eggshells, and blacken the drawings with charcoal so that they stand out boldly from the white background. Old women break up ostrich eggshells, pierce tiny holes through the pieces and string them into necklaces and headbands which are greatly admired

In course of time some white farmers caught a number of ostrich chicks and kept them in runs enclosed by wire fences. The chicks fed on the wild bushes of the karroo, and when these ran short in the dry weather the farmers gave them lucerne and other green crops to eat In this way large "camps" of ostriches were reared and South African ostrich feathers became famous They were bought in thousands for trimming hats, fans and wraps, and ostrich farming grew so profitable that it was taken up in Australia and America as well. Afterwards, ostrich feathers went out of fashion. Large hats trimmed with plumes gave place to small hats trimmed with ribbon and artificial flowers Many farmers were ruined Each year, however, a great many feathers are wanted, and as the fashions are always changing, the ostrich farmers in South Africa have good years and bad years of sale, according to the styles of the times

Ostrich farming is carried on in many districts in South Africa, and the most famous of them all is Oudtshoorn on the Little Karroo, 270 miles away from Port Elizabeth. This region is specially suitable for ostrich farming. It has a rich soil on which splendid fields of lucerne will grow, and this, together with native bush, is the best food for producing fine feathers Neither lucerne nor ostriches will thrive without water, and the rainfall is small in Oudtshoorn, but the rivers are fed by springs from surrounding snow-capped mountains, and they never dry up. The river water is run on to the land through furrows. The lucerne pastures are flooded two or three times a year, and so are kept from going dry during the hot months when water is scarce. Besides good food the birds require plenty of grit, lime and broken bone in their "camps" to help them to digest their food and make strong eggshells.

[Reproduced by courtesy of South African Railways

OSTRICHES AT OUDTSHOORN

To obtain the feathers, the ostrich farmers drive the birds into "races" or narrow lanes between high fences, where their heads are covered with caps to keep them quiet An angry ostrich is very dangerous, and can kill a man with its kick. The large wing and tail feathers of six months' growth are then cut two inches away from the sockets, causing no more pain than cutting our hair gives us. The stumps left behind wither and are pushed out by new feathers in a few months' time. The best plumes are the pure white and the black ones. Other colours are got by dyeing Birds that are three years of age yield the finest feathers, and after they are seven years old their feathers are useless, but they will go on rearing chicks for thirty years A fine pair of ostriches could once be sold for £1,000, but such a high price would not be offered nowadays.

Wool.—Once upon a time a flock of merino sheep grazed on the grassy slopes of a high tableland in Spain The weather was hot and dry and the grass rather scanty, so the little merinos walked and climbed a very long way each day in order to find enough to eat. They did not mind that, because roaming over the wide open spaces made them healthy and strong.

One day seven little sheep were separated from the others and carried away many weary miles in a bumpy oxcart, until they reached the sea. There they were hoisted on a sailing ship, no one heeding their piteous bleats, and away they went over the water The ship rolled and plunged, and the poor little Spanish sheep felt sick and ill. At last they reached the shores of a foreign land They were hoisted out of the ship into another oxcart and off it went

once more, jolting and creaking for miles and miles

"We are going back again to the flock," bleated the little sheep to each other; but they were mistaken. When finally set free they found themselves standing on a strange, light-coloured hillside with white stones scattered over it and clumps of bushes making dark patches everywhere.

"We are lost! We are lost!" bleated the little sheep They had eaten no fresh green food since they had left Spain, so very soon they began nibbling the bushes These tasted very good, and soon the little merinos were munching happily They found themselves safely fenced in from the cruel, prowling jackals who barked and frightened them during the night, and the bright sunshine in the daytime reminded them of their home far away. In a short time they had grown used to the new country. After a year or two had passed the seven little merinos had added to their number several lambs. Their coats were silky and fine and they had never felt better in their lives.

Where was this new home of the merino sheep?

It was sunny South Africa, a land now famous all over the world for its splendid wool. Millions of merino sheep live there in these days They still love to climb and wander for long distances while cropping the grass and bushes, so their flesh is too tough and sinewy for mutton, but their fleeces are magnificent They are found now in all parts of the country, but the largest flocks are reared on the Little Karroo, near Oudtshoorn, and on the high veld of the Orange Free State.

The great drawback to sheep farming in South Africa is the lack of water In many districts no rain falls from May to October (the winter season), and long before the spring grass comes the sheep begin to have a very lean time, and need extra food to keep them alive Thus the sheep farmer must settle where he can obtain enough moisture to grow fields of turnips, mangolds, maize or green food like lucerne, which can be stored in air-tight pits, or in towers called silos, for winter fodder Wherever he can get water the sheep farmer makes his home. He builds a low homestead with a wide veranda round it and plants some trees From jackal-proof fencing he makes a pen for the sheep and puts up sheds for shearing Then he hires a few native boys to help him with the work. The Bantus are good shepherds and very fond of animals They do all the shearing by hand, and dip the sheep, or dose them if the hot weather makes them ill After shearing, the wool often has to be sent a long way to a district with a good supply of water for washing Then it is stacked in bales and taken by train to the coast. Because pasture is scanty, farms extend for many miles, excepting near Cape Town, where instead of merinos, Cape sheep with fat tails are reared for their mutton Sheep cannot live in every part of South Africa In some districts of the veld the soil is sour and useless either for grass or crops. Any sheep eating the wild plants that grow in these parts will sicken and die of poison

Fruits.—Boys and girls who live in Cape Town can buy at harvesting time a pound of delicious grapes for a penny, and oranges, pears, plums, apricots and peaches are not much dearer. This is because the winds bring rain in winter to the south-western corner of the country, and the summers are hot and dry, perfect weather for the growth of fruits which have tough skins preventing the sun from drying them up. The vineyards are planted in rows and the ground is kept carefully hoed and furrowed so that no moisture is wasted, for rain in South Africa is precious The grapes never suffer from lack of sunshine, but the rainfall is not so plentiful in some years as in others. The grapes from vines grown on trellis are sold in bunches as fresh fruit, and arrive in Britain in the early summer, when the grapes from France have all been eaten. This is because South Africa lies south of the equator and enjoys summer when

European countries have their winter. Most of the fruit eaten by British boys and girls during the summer months comes from South Africa and Australia. Many of the grapes grown around Cape Town are pressed and made into wine, and large quantities also are dried and turned into raisins

Orchards of oranges, apples, pears, plums and apricots are grown all along the south coast, and orange groves also flourish in the Transvaal, the district which sends us grapefruit. Orange trees take up a great deal of water and nourishment from the ground, so they need deep, rich soil. The trees have to be carefully tended, sprayed and pruned; they bear fruit when they are three years old. Native workmen are often employed, but they are not so clever in growing orange trees as they are in rearing sheep and cattle. The fruit has to be picked, handled and packed very carefully, and is brought overseas in freezing rooms. The smallest bruise or cut on the rind will cause an orange to decay Then hundreds of others will go bad as well, and hard-earned money will be lost.

TEACHING HINTS

1. Fruit.—If specimens of maize, ostrich feathers, merino wool, and South African oranges and grapefruit can be obtained and shown to the class they will add interest and reality to the lessons. Blackboard sketches are also valuable

2. Cornflour.—Our cornflour used in cooking is made from finely ground maize Here is the recipe of a cornflour pudding that some of the pupils might like to ask their mothers to make, so that they can taste maize flour for themselves—

Ingredients.

2 ozs cornflour.	1 oz sugar.
½ pint milk	Strip of lemon or orange
½ pint water.	rind

Method

Put the milk and water on to boil with the rind Mix the cornflour to a smooth paste with a little extra milk Pour the boiling liquid over the cornflour. Return to the saucepan and boil 10 minutes, stirring all the time Add the sugar and remove the rind Pour into a wet basin, set aside till cold and turn out Serve with jam or stewed fruit

3. Sheep and cattle.—Compare the Union with Australia and New Zealand with regard to the number of sheep and cattle

	Union	*Australia*	*New Zealand*
Sheep	46,000,000	112,000,000	31,300,000

These are the three important parts of the empire for sheep and wool.

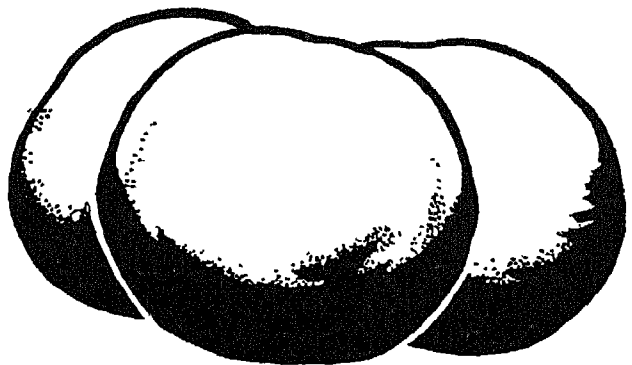
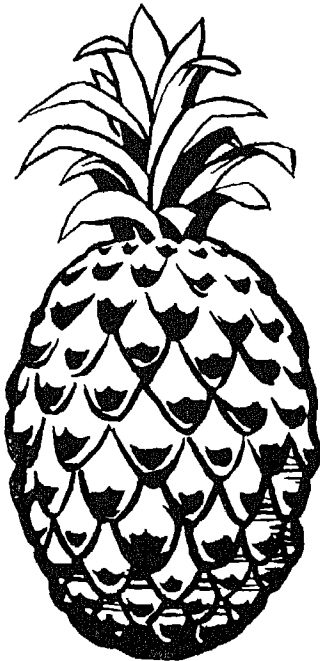
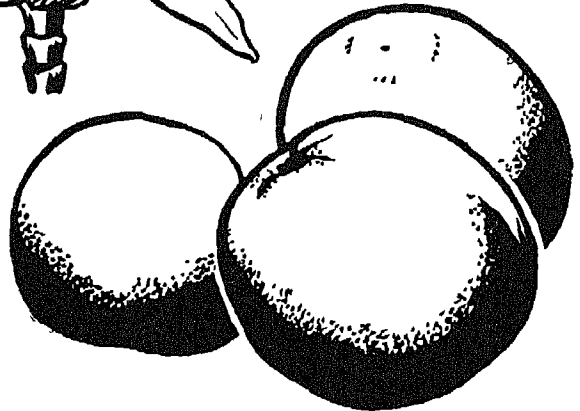
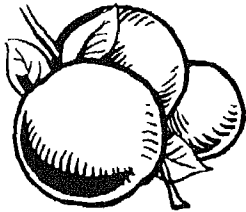
	Union	*Australia*	*New Zealand*
Cattle	10,500,000	14,000,000	4,400,000

Taking into account the sizes of the three divisions, New Zealand possesses more cattle and sheep per square mile than either of the other two, but the Union is better off, in that respect, than Australia The number of people in each region must, however, be considered, and this would bring Australia into the second place as a pastoral country, the Union becoming third. As a country suitable for pastoral work the importance of the Union for goats and ostriches is conspicuous.

4. Mohair.—The hair of the Angora goat, of a fine, white, silky nature, is said to be produced in perfect quality in no place except Angora in Asia Minor The Cape region has, however, specialised in the production of mohair in recent years.

5. Mediterranean climate.—Compare the position of Cape Town with that of Perth

SKETCHES FOR THE BLACKBOARD

SOUTH AFRICAN FRUITS

APPLES
PEACHES
PINEAPPLE

CORN COB

PEARS
ORANGES
GRAPEFRUIT

(A blackboard sketch of GRAPES is given on p 323)

(Australia). The general setting is the same in each case. The latitudes are almost the same and each is in the south-west corner of a land mass. Similar climatic conditions prevail

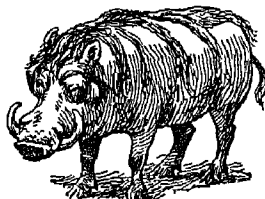
Cape Town —temperature range 55°—70° F.
rainfall 24·8 in —
greater part in winter
Perth —temperature range 55°—74° F.
rainfall 33·3 in.—
greater part in winter.

In each case the westerly winds bring rain in the winter months. Summer dryness means abundance of sunshine.

6. Maize in South Africa.—On the farms the maize crop is used for many purposes It supplies food to the farmer's household, to his native labourers, and for his farm animals For human consumption it is generally used in the form of maize meal. The crushed grain is the standard food for horses, and maize meal is given to dairy cows. The meal or soaked grain is used as pig food, and poultry are fed on the whole or crushed grain Sheep, as a rule, are not fed on maize, but it is sometimes given to them in winter Maize forms an important part of the food of both trek and slaughter oxen.

7. Native labour.—Originally a pastoral people, the Bantus possess a considerable natural aptitude for farm duties. Most of the native tribes have been brought up among cattle and they have a well-developed instinct for noticing incipient diseases in stock, and other matters likely to influence farm work. The women make good domestic servants

8. Memory work.—(*a*) Maize is also called Indian corn or mealies Horses, cows, pigs and poultry are fed on maize, and the people of Africa grow it for food (*b*) Ostriches feed on lucerne. The sale of ostrich feathers depends on the fashions (*c*) Merino sheep have long, fine, silky fleeces (*d*) Silos are storehouses of food for sheep (*e*) The district round Cape Town has hot, dry summers and wet winters Fine grapes and other fruits are grown there.

9. Exercises.—(*a*) What is the chief food of the Bantus of Africa? (*b*) Who cultivate the Bantus' fields? (*c*) Describe an African boy's plum pudding. (*d*) What uses are made of maize by white people? (*e*) Tell all you know about ostriches. (*f*) Why do Bushmen prize ostriches' eggs? (*g*) What is the best food for ostriches? (*h*) How are the feathers taken from the birds? (*i*) Why are the profits from ostrich farming sometimes large and sometimes small? (*j*) Where are the largest ostrich farms in South Africa? (*k*) Tell how merino sheep came to live in South Africa. (*l*) Why are they of little use for mutton? (*m*) How do sheep farmers provide against the dry weather? (*n*) What fruits grow in South Africa? (*o*) Why are vineyards and orchards found around Cape Town? (*p*) What is done with the grapes? (*q*) Why are people in England glad to get fruit from South Africa?

WART HOG

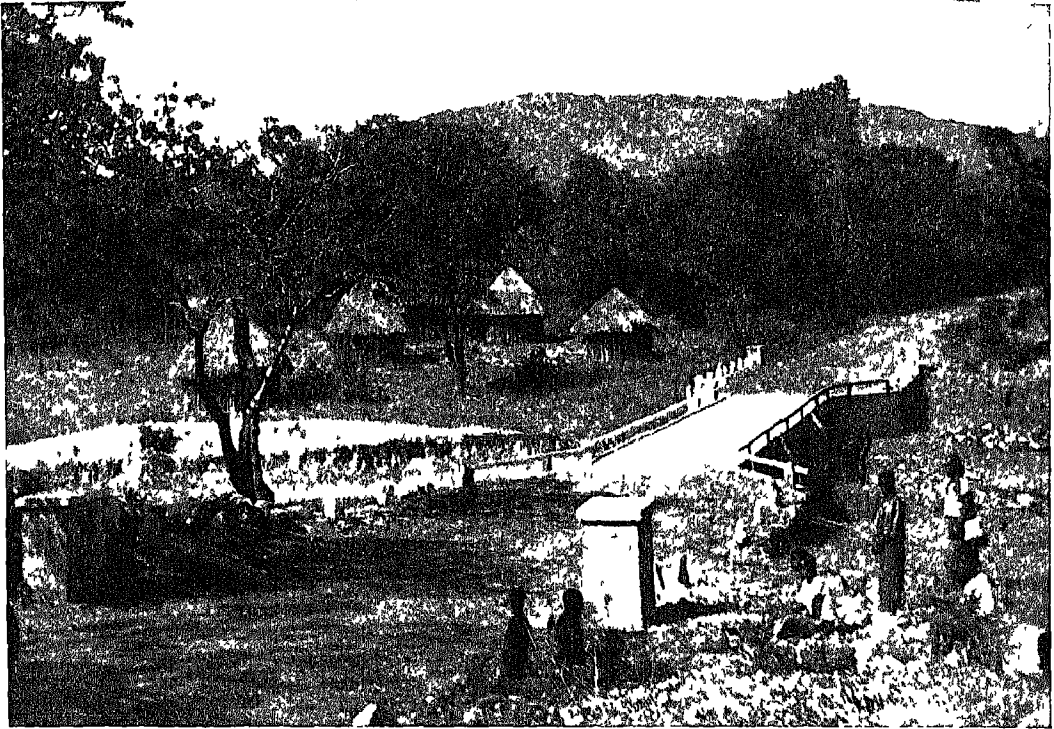
IV. SOUTH AFRICA—MINERALS AND CITIES

PICTURE REFERENCE

MOCHUDI—BECHUANALAND

FOR this lesson refer to Picture No 93 in the portfolio—Mining in South Africa—and informative text in the Reference Book The above illustration shows clearly the layout of an African town and the grouping of the family huts within their enclosures Water is provided by the stream issuing from the hills, and trees have been planted to give shade during the heat of the day Near the foreground is the *khoro*, the space used for a market, or for a meeting, as at present, the local dignitaries being seated under the shady pavilion

INTRODUCTION

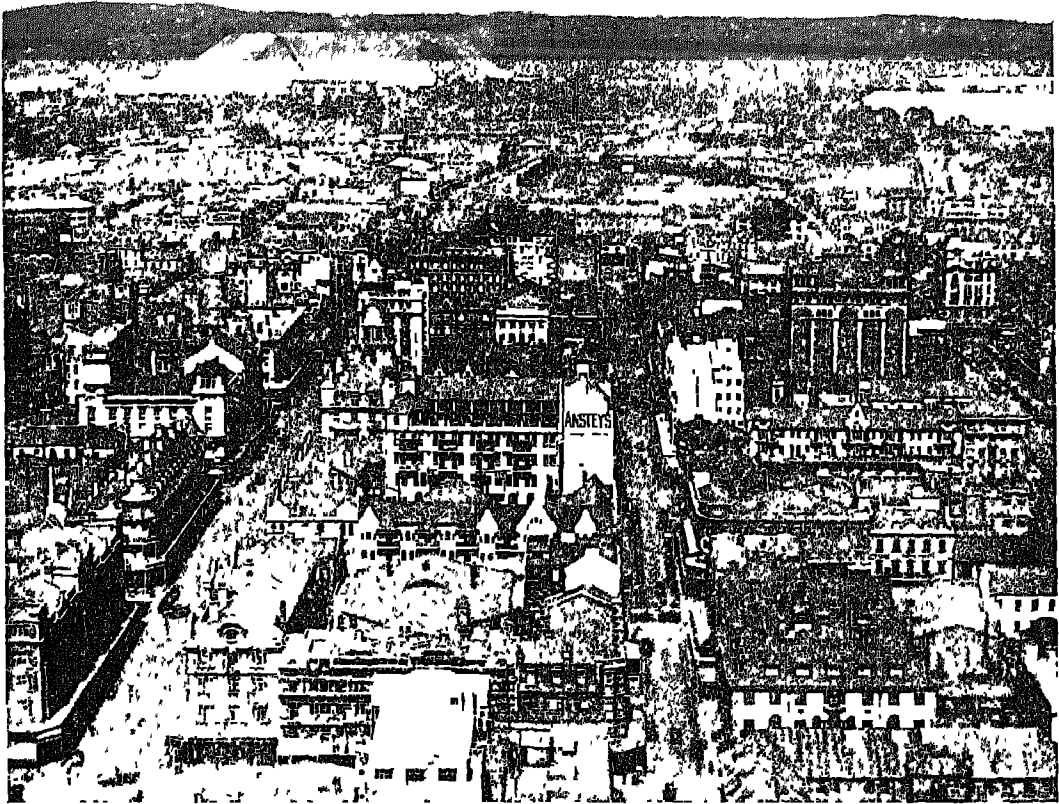
Gold.—Johannesburg is one of the few African towns of which the name and fame are known in most lands. It is situated on a plateau, nearly 6,000 feet above sea level, at a place where it is crossed by a ridge called the Witwatersrand. The discovery of gold on this ridge in 1886 laid the foundations of Johannesburg, which has risen to be the chief city of South Africa, and the third largest in the continent. Gold had previously been discovered at Lydenburg in 1873, and at Barberton in 1884, but the importance of the new discovery soon made itself apparent. The wealth of the Witwatersrand caused a great influx of people. The districts in which the mines were situated produced little vegetation, and all food and material had to be transported from the coastal districts Every road from

[Reproduced by courtesy of the South African Railways

NATIVE HOMES IN SOUTHERN RHODESIA

the ports, even from such a distant port as Cape Town 950 miles away, became crowded with bullock wagons transporting stores For a time the farming industry suffered by the loss of workers attracted to the mines and to the transport service. Railways were built as soon as possible to link the mines with the ports, and, to-day, all the chief roads, railways and aerial routes converge upon the gold fields In 1892 the railway to Johannesburg via the Orange Free State was opened. In addition to being the centre of the gold mining industry Johannesburg is a large agricultural market and commercial centre

The gold ridge dips below the surface for several thousand feet, and the veins containing the gold vary in thickness from a few inches to twenty feet The ridge extends for over sixty miles across the country, and half of the world's supply of gold is obtained from it.

To recover an ounce of gold, about three and a half tons of rock have to be blasted and hoisted to the surface to be crushed and treated with chemicals There is a profit of about 8*s* 9*d* on each ton of rock treated. The Village Deep Mine, which is the deepest gold mine in the world, has a depth of over 7,300 feet, while the City Deep Mine penetrates 7,000 feet beneath the surface

The gold when obtained is sent to the Rand refinery, at Germiston, where it is cast into ingots for shipment This gold refinery is the largest in the world Hills of powdered rock from which gold has been extracted are found near Johannesburg for a distance of thirty miles These dumps are an ugly feature in the landscape, as are the chimney stacks and mine buildings of galvanised iron. Johannesburg itself, however, shows little sign of the mining industry Within a radius of half a mile from its centre

[Reproduced by courtesy of South Africa House

JOHANNESBURG FROM THE AIR—JOUBERT STREET AND ELOFF STREET

it contains many fine buildings and magnificent streets; outside that radius are the great offices of the mining companies, banks, hotels, shops and other business premises On the outskirts are the sports grounds and racecourses The city is built on ridges and valleys, which, with its magnificent gardens, give it a very picturesque appearance

Diamonds.—In 1870 the South African diamond rush gave promise to make Kimberley a great town The valuable finds, however, caused only a temporary excitement, and although the development of the mines stimulated railway and road construction, the country as a whole was little disturbed Kimberley now contains some 19,000 Europeans and a total population of over 55,000 All these people are grouped together in the vicinity of the mines. From four mines, covering an area of less than two hundred acres, diamonds worth £55,000,000 have been obtained in about fifty years In recent years the mining has been carried on in underground tunnels The gems are found in a blue earth which is hoisted to the surface and screened, washed, crushed and shaken on greased vibrating tables in the process of separating the valuable stones

Diamonds, probably gathered together by volcanic action, are found in pipes or funnels running into the earth These pipes form

[*Reproduced by courtesy of C P R*

NATIVE DANCE IN A COMPOUND

the diamond mines, and are probably the largest holes in the world The open-cast method of mining is, however, unprofitable at a depth greater than 800 feet, and to-day most diamond mining is carried on in a manner similar to that of coal mining at a depth of 3,500 feet or more.

A great pipe found in the Transvaal about twenty-three miles from Pretoria is known as the Premier Mine From it was obtained the largest diamond in the world, the Cullinan, weighing one and three-quarter pounds. Another important mine is at Jagersfontein, in the Orange Free State The chief labourers employed in diamond mines are coloured people, who live together in neat, well-built hutments, good food and baths are provided, doctors attend to the sick and the workers are able to return home with all their earnings at the termination of their engagements. The diamond mines are popular places of labour with the native population

The Union of South Africa produces about 56 per cent of the diamonds of the world

The town of Kimberley is built on bare veld and its plan is irregular, owing to its having grown out of several mining camps Among the principal buildings are the High Court of Griqualand, a clock tower, the post office and the town hall, all grouped about the market square There is a good public library and museum Most of the white workmen employed in the mines live in the "garden suburb" of Kenilworth

Coal.—South Africa is fortunate in possessing good supplies of cheap coal, principally

in the Transvaal, Natal and the Orange Free State. The two great areas for production are the Witbank mines of the Transvaal and the Newcastle area in the Klip river region of Natal Durban has been a bunkering port for more than fifty years, and, since South Africa is such a long distance from any of the important coalfields of the world, such a coaling port is of great value to ships. The coal is even more important to the development of the Union, for during the years between the World Wars, huge power stations for electricity generated by coal were erected in suitable places, and to-day a vast grid system carries cheap current for the electrification of homes and farms, mines and factories, and many miles of railway

The bituminous coalfields of Natal lie in the highland area of the northern part of the colony at a distance of about 275 miles from the coast They are at an elevation of about 4,000 feet above the sea in a healthy and picturesque region The field, which stretches from Newcastle to Elandslaagte for a distance of sixty miles, is alongside the main railway line which links up Johannesburg with Durban. The areas near the coalfield are good farming lands and supply a considerable amount of material to the mining towns. During the first years in which the coal was obtained the primitive bullock wagon was used to transport the mineral from the mines to the consumer. Until 1898, the trade in coal was confined mainly to Natal's requirements.

Bunkering was not commenced at Durban until 1890, and then only in a small way. To-day, however, Durban is equipped with modern machines of electrically-driven belt and bucket transporter appliances for the rapid coaling of steamers.

Durban, with its seven square miles of almost landlocked water, is the premier port of South Africa. Huge grain elevators, pre-cooling stores and oil tanks help in the control of 50 per cent of the Union's trade. The chief industries of the town are connected with shipping and the transport of goods by railway, but there are many local industries such as the manufacture of jams and preserves, soap, matches, biscuits and furniture. The port possesses one of the largest graving docks in the world for the repair and overhaul of ships. The main business section of the city is laid out in a low-lying sandy tract on the north and north-western part of the bay The public buildings include a town hall, the municipal offices, a public library, an art gallery and a technical college Behind the business quarter rises a sharp ridge, the Berea, which is the favourite residential district Most of the houses stand in their own grounds, surrounded by trees and shrubs, flowers and lawns. The town is hemmed in by a zone of Indian settlements with squalid huts and untidy surroundings.

In the Transvaal coal was first opened up near Boksburg in 1887 The finding of the mineral near the Witwatersrand goldfields was of the greatest importance, as the areas near the gold mines were practically destitute of timber, and there was no railway communication to the coast or to other coalfields A little later large deposits of good coal were found in the Middelburg district, from which electricity is now generated for use in the mines.

The Witbank mines are seventy miles from Johannesburg.

Pretoria.—This city is the administrative capital of the Transvaal It was founded by Marthinius Pretorius, one of the early leaders of the "Trek" Boers, and was laid out, in a simple fashion, in 1855 It is forty miles north of Johannesburg and about a thousand miles from Cape Town Within twenty-five miles of the town, at Hartebeestpoort, is the largest irrigation scheme in South Africa A dam creates a lake with an area of six and a half square miles The famous Premier diamond mine is only twenty-three miles away The town is laid out in rectangular blocks At the centre is Church Square, on the south side of which are the Provincial Council buildings and other public buildings On the north

side are the law courts and on the west the post office The spacious and dignified Union Building, which is the administration centre of the country, overlooks the city, the lower slopes of the hill being laid out in beautiful terraced gardens The city has several parks and sports grounds, including the zoological gardens There is an Anglican cathedral, several high schools, a normal training college and the Transvaal university college. Heavy industry is represented by one of the most modern iron and steel plants in the world.

Cape Town.—At the beginning of the nineteenth century Cape Town was a collection of small buildings with thatched roofs, and was visited by sailing ships which made their hazardous voyages to Africa and the East. To-day it is a magnificent city, the second largest in the Union, and is the calling place for the largest vessels using the Cape route. To the south, immediately behind the town, rises Table Mountain in a precipitous wall two miles long. The main street is Adderley Street which runs inwards from the shore and is continued seaward by a promenade pier. The esplanade is planted with palms and shrubs. The other end of the street is continued by Government Avenue which extends for over half a mile and is lined by oak trees. To the immediate west of Adderley Street lies Greenmarket Square, the former centre of the old Dutch town, and near by is Riebeck Square, on the site of the old slave market There are many open spaces with commons, golf links, athletic grounds and botanical gardens. Among the notable buildings are the Castle, completed in 1680 with brick brought from Holland, the Houses of Parliament, Government House, the South African Library, the South African Museum, the University, the Anglican Cathedral and the Dutch Reformed Church,—the oldest church in South Africa in which eight of the old Dutch governors of the Cape are buried. Cape Town is the seat of an archbishop of the English Church, and of a bishop of the Roman Catholic Church Outside Cape Town is Groote Schuur, which was left by Rhodes as the official residence of the premier of the Union. The harbour is extensive and well equipped There are electric cranes and transporters, cold stores for fruit, a grain elevator and a graving dock Cape Town is the chief port of exit for gold and diamonds, fresh and dried fruit, flowers, wine, wool, mohair, skins and maize All activities enjoy the boon of abundant electricity supplied from Table Bay power station, by means of the grid system, at a very low cost

The city of Cape Town is a noted pleasure resort for visitors from South Africa and from other countries. Business people from various parts of the Union take up permanent residence among the beautiful surroundings of the hill slopes, which are covered by plantations of trees, heaths and bulbous flowers which are a blaze of colour in the spring months. There is probably no more beautiful drive in the world than the ninety-six mile drive round the peninsula, where the picturesque blending of mountain and sea, heathlands and woodlands is unsurpassed The climate is noted for the amount of sunshine, which averages 7 5 hours a day throughout the year High temperatures occur in the summer, but the heat on the western side of the peninsula is tempered by cool sea breezes

The visitor to Cape Town is particularly impressed by the mixture of nationalities seen in the streets—Malays, Indians and Africans, as well as South Africans of Dutch and British descent.

South-West Africa is a Protectorate under the government of the Union of South Africa. It is a large territory with a small population, mainly because much of the region is barren and waterless. Along the coast is a level sandy strip some thirty miles wide, in the east is the Kalahari Desert. The chief industry of the Africans is the keeping of cattle, sheep and goats The country is rich in diamonds and copper. Diamonds are

found along the coastal regions south of Walvis Bay, copper is mined in the north of the country. Windhoek is the capital, Swakopmund, the former German capital, is a little north of Walvis Bay, which has a good harbour. A military railway laid during the First World War joins the Cape system at De Aar junction with the railways of South-West Africa.

CHILDREN'S STORY

Mochudi.—When Gulliver was on his travels he stayed for a time in a strange land which was full of giants, and everything that grew there was enormous too. The blades of grass stood higher than his head, and the mushrooms were large enough to sit under Mochudi, a town where only Africans live, looks like a field of such giant mushrooms when seen from a distance, because of the conical shape of its huts This interesting native town is in Bechuanaland, a part of the British Empire in South Africa. It is an important telegraph station of the British South Africa Company, and native policemen in smart uniforms see that the winding maze of streets is kept clean and orderly The tribe is ruled by a chief who makes laws and judges his people. The Africans assemble in the square for dances, and markets are held there every week The people are clever at basket making and pottery, and the native carving is very good too There are not many native towns so large and prosperous as Mochudi

Diamonds—Some little Dutch children who lived in a farmhouse in Hopetown near the banks of the Orange river once found a small, queer, cloudy stone It was different from all the other pebbles round about, so they kept it among their playthings and called it their "lucky stone" They were playing with it one day when a visitor at the farm noticed it and offered to buy it from the children

"Oh no! You mustn't think of giving them money for it," said their mother "You can have it for nothing. It's a pretty thing, but only a pebble after all You are welcome to it"

The stone was taken away and examined by many different people What do you think it proved to be? A diamond! Some more stones were bought for very little money from Africans who had found them in the same district, and all were found to be diamonds worth thousands of pounds

In a few years' time large numbers of men were leaving England to search for diamonds in the Hopetown region They made the journey from the coast of South Africa by bullock wagon, as there was no railway in those times Their days were spent in the open air, and at night they slept in rough huts made out of packing cases, and some even slept in big barrels They employed workmen to dig up gravel from dry river beds and the white men then washed and sorted it. Some very good diggings were found in the yellow, sandy soil where the town of Kimberley now stands Many people bought claims and made their fortunes from the diamonds that they washed out of the earth. The life was a hard one, for it was not easy to get food Milk was sometimes five shillings a pint, and the price of an egg was three, four or more shillings Cauliflowers often fetched ten shillings and even twice that amount.

When all the loose soil had been sorted, the diamond seekers came down to a hard layer of blue rock. They were very disappointed and sold their claims in disgust Then it was found that the blue earth was richer in diamonds than the sandy soil, but more difficult to work. It had to be blown up in lumps and then spread in the open air and left for several months The sun gradually crumbled the blue earth, until at length the diamonds could be shaken out of it All the claims in the district were bought by a large company with plenty of money to lay out in machinery, and the seam of blue rock was carefully worked A railway was built; four large diamond mines were opened up, and Kimberley

quickly grew from a mining camp into a handsome city.

A diamond mine is like an enormous funnel whose narrow end runs deep down into the earth The largest diamond mine in the world is not at Kimberley but near Pretoria in the Transvaal It is called the Premier Diamond Mine and its mouth is as large as the crater of a volcano. The noises made by the thundering explosions echo from side to side of the mouth of the mine, and are terrifying to hear. In this mine was found the Cullinan diamond, the largest ever known, which weighed nearly two pounds. Two beautiful gems cut from it are in King George's crown and sceptre

The Kimberley mines have had their famous stones, too. One of the very first, called the Star of South Africa, was valued at £25,000, while another, the Porter-Rhodes stone, was sold for £60,000. At Kimberley there is also the "Big Hole," the deepest digging made by men You must walk a mile to go all round it and it is over a quarter of a mile deep.

Most of the work in the mines is done by Africans who live in compounds when they are not working Through this arrangement they are well cared for and properly fed. A compound is a stretch of ground shut in by high walls. Neat well-kept hutments are built along the walls, leaving a large open space in the centre, where at any time of the day can be seen scores of workmen, "sitting about half-naked, chatting, smoking hemp, making bangles, playing or bathing in a large tank which serves as a swimming bath, or else lying down sleeping in the shade." Gangs of men work in the mines for a shift, and then come up for a rest while other gangs go down When shifts are being changed there is a stir in the compound. From deep down under the earth appear black figures dripping with sweat, "their eyes and teeth and the wet ridges of their bodies glistening in the dark " The blue rock which these men send above ground is run off in trolleys to floors where it is sifted, washed and crushed by machines many times. At length it goes to the machine which shakes and washes the diamonds free from their earthy home.

Gold.—The largest town of South Africa is Johannesburg, which stands where a ridge of hills called the Witwatersrand runs for sixty miles across the high veld. All the railway lines from the coast run to Johannesburg. It is a great city, with wide streets lighted by electricity, tramways, splendid buildings and beautiful gardens. On the outskirts of the town are sports grounds and racecourses

Sixty years ago Johannesburg was a collection of wooden huts and tin shanties. Why is it now the most important city in South Africa?

Sixty years ago, gold was discovered in the Rand, and thousands of diggers flocked to the spot. In a short time a large mining camp marked the beginnings of Johannesburg. Men lived mainly in corrugated iron sheds hastily put up on the bare veld They threw their waste water and rubbish into the dusty streets, and had not the climate been one of the best in the world, they must have caught diseases and died. Everything that they wanted—building materials, tools, food and drink—had to be dragged for more than a hundred miles over the veld by long trails of bullock wagons, for at the time there were neither railways nor roads in the Transvaal. Some gold was picked up in dry river beds in the form of small nuggets, but the gold in the Rand is scattered like powder through hard rock called quartz, and heavy machinery is needed to get it out.

Nowadays, as the traveller draws near the Rand by train, he sees from the carriage window one long line of tall iron chimneys. Above the rumble of the train he hears the roar of batteries stamping and crushing the quartz containing the gold dust. (See the gold stampers in the Johannesburg arms, page 543) The powdered rock is mixed with water and passed over plates to which

the gold dust clings, and from which it is afterwards scraped off and purified. The quartz slime is then run into vats where every trace of gold is separated from it, and the waste "tailings" are shot on to enormous rubbish heaps. These ugly dumps, chimney stacks and long, red-roofed, airy bungalows in which the miners live surround Johannesburg for a distance of thirty miles. After the gold has been removed it is sent to a refinery and melted into ingots or bars which are carried away by ship to other lands.

Deep shafts have been dug in the gold ridge and a string of mines runs along underground for the whole sixty miles. Africans, working electric drills and cutters, dig out the rock and send it off by electric tractors to the surface Above ground white men then take it in charge

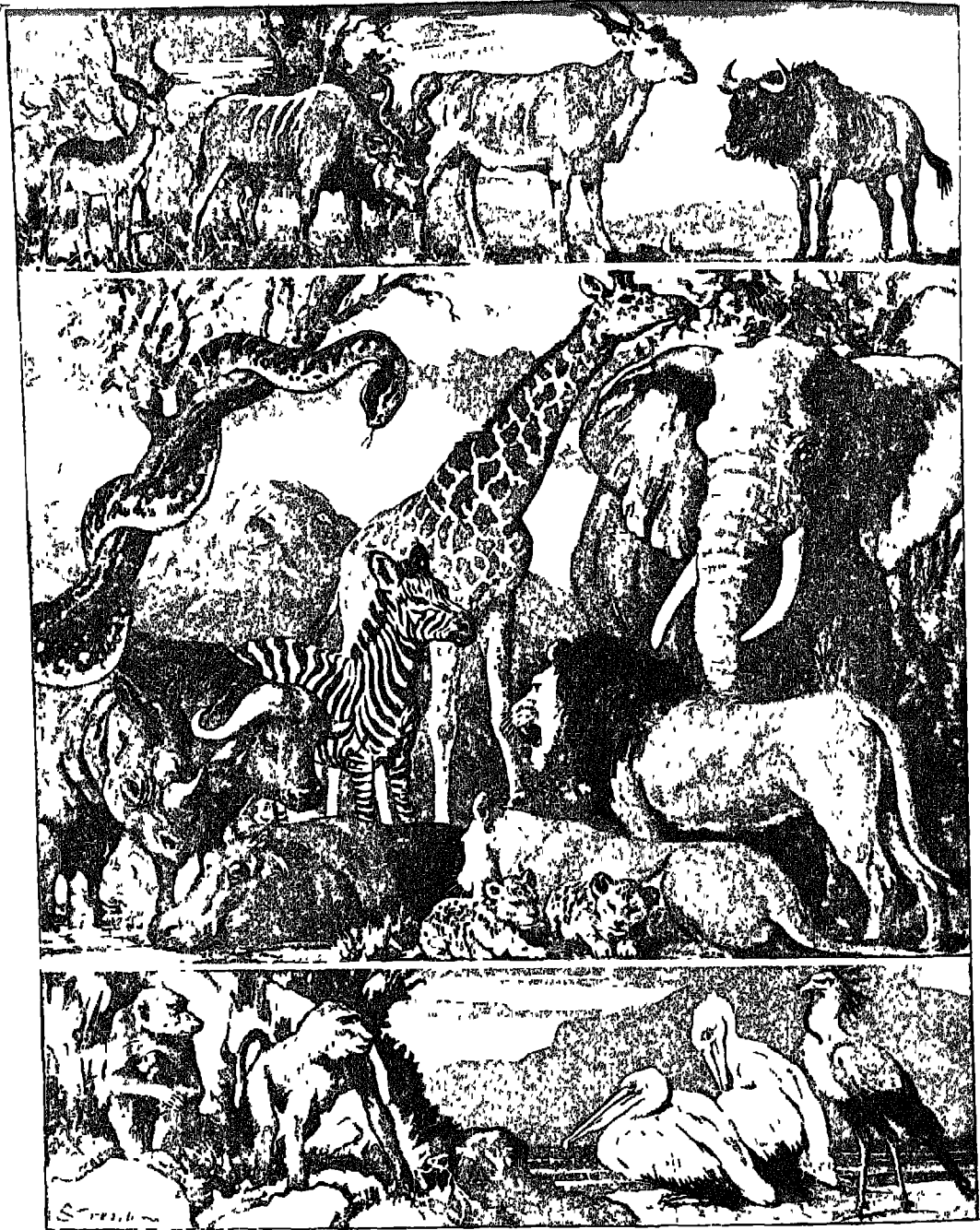
The miners return to their homes at the end of the term of months for which they were engaged, and they take all their earnings with them Many of them enjoy the life in the compounds Every week they hold war dances. They carry sticks instead of spears, and they chant a low, moaning song, keeping in time with the beat of the drummers. As the battle song grows louder the dancers spring forward at every few beats and swing their sticks in rhythm Visitors who are allowed to watch the dances find them most interesting.

Half the gold supply of the whole world comes from the Transvaal

Towns.—The western part of South Africa is chiefly inhabited by Boers who own large sheep farms In the eastern provinces, however, live countless Africans in kraals; while here and there can be seen a few English-looking villages standing amid gardens and trees Many houses are roofed with corrugated iron, since there is no slate in South Africa. In early days the white settlers were at the mercy of the hordes of Africans who stole their cattle and murdered many of the settlers. Men had to fortify their farms and be ever on the alert with their rifles to withstand attacks. Some of these small forts have now grown into towns. First came the general store, then, as more white men arrived, a few shops and boarding houses were built, and later a church Where work attracted thousands of people, towns like Kimberley and Johannesburg grew up One town, where ships called to collect wool and ostrich feathers, was Port Elizabeth on Algoa Bay. To-day it is a fine city with busy factories in which all sorts of things from children's slippers to the best motor cars are made It has a grand harbour and railways to all parts of the Union

A far busier port, however, is Durban in Natal At Newcastle, north of Durban, coal is mined. Some of the coal is used by the railways, some is wanted to work the machinery in the gold and diamond mines; the rest is stored in Durban and bought by steamships that call to have their bunkers filled, so that they can continue on their voyages. Durban is an important coaling station, for South Africa is a long distance from other coalfields in the world, and ships trading with the country cannot carry enough for the return voyage as well Besides calling for coal, ships carry from Durban cargoes of sugar, maize and tea from the coastal uplands. Durban is 800 miles by sea from Cape Town. Its splendid harbour is known as Port Natal, and in the summer months, from October to March, thousands of people bathe in the blue waters of the bay.

Next in importance to Durban is Pretoria, where the government officials of the Union do their work It stands in a circle of sheltering hills more than 1,000 miles away from Cape Town The Premier Diamond Mine is only twenty-three miles distant The splendid government buildings stand halfway up a hill overlooking the town.

To the north of Pretoria lies the great Kruger National Park, 8,000 square miles in area It stretches eastward to the foothills of the Drakensberg and northwards as far as Rhodesia. This land has been set

ANIMALS OF THE KRUGER NATIONAL PARK

Top panel IMPALA, KUDU, ELAND, WILDEBEEST
Middle panel NATAL PYTHON, GIRAFFE, ELEPHANT, RHINOCEROS, CAPE BUFFALO, ZEBRA, LION, HIPPOPOTAMUS, LIONESS AND CUBS
Bottom panel BABOONS, PELICANS, SECRETARY BIRD

(Class Picture No 95 in the portfolio)

aside by the government as a haven for the wild animals of the Transvaal, and no one is allowed to shoot or disturb them. It is looked after by a warden who has his own police and assistants. Some animals are so tame that they will let men go up quite close to them There are hippopotami and crocodiles in the rivers, rhinoceroses, giraffes, buffaloes, wildebeeste, zebra and deer of all kinds Warthogs abound in the open parts of the country, and there are also lions, leopards, wild cats, jackals and hyenas. The flesh-eating animals prey on the grass-eating animals, just as they do in their natural state. The warden kills some of them if they become too numerous. Fish swim in the rivers and pools, and in the cool of the mornings and evenings among the shady thickets by the streams, hundreds of brightly coloured birds twitter and fly The wild ostrich lives in those parts that suit its habits Numbers of visitors go out by railway to the park from Johannesburg, Pretoria and other towns, and can stay there a day and a night The train is run into a siding, and parties go with guides for bush walks, and to take photographs. At night a "camp fire" is lit by the railway track, and between songs is heard the howling of hyenas and the roaring of lions

Cape Town.—Long before it became part of the empire, Cape Town was a calling place for ships sailing to India and the East, and its harbour is now one of the most important in the whole empire. It is also one of the grandest, guarded from behind by the giant fortress of Table Mountain between its two smaller companions, the Lion's Head and the Devil's Peak The laws of the Union of South Africa are made in the House of Assembly at Cape Town. In one of the suburbs is the house in which Cecil Rhodes used to live, and near it are some fine zoological gardens Cape Town Castle, which was begun by the Dutch in 1666, looks over Table Bay. There are over 336,000 people in Cape Town, of whom half are white.

"'Snatched and bartered oft from hand to hand,
I dream my dream, by rock and heath and pine,
Of Empire to the northward Ay, one land
From Lion's Head to Line!'"

—Rudyard Kipling

TEACHING HINTS

1. Diamonds.—It would be interesting to conclude the lesson on diamonds with a chat in which the pupils might tell of different gems that they have actually seen—perhaps in jewellers' shops. Most of them, of course, will not have realised how much imitation jewellery is made. Pictures and sketches are always useful Explain that good diamonds have no colour of their own, and are "cut" to show their brilliant fires. Diamond cutting is very difficult. It is mainly done in Amsterdam and London. Diamonds are very hard and are often used for cutting glass Very tiny ones can be sometimes seen inside watches.

2. Gold.—The importance of the Rand gold in the development of the Transvaal and of the railway system on the Union should be emphasised.

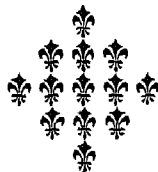
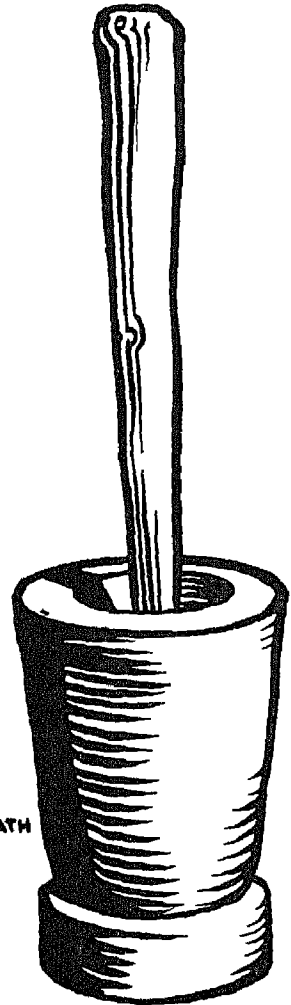
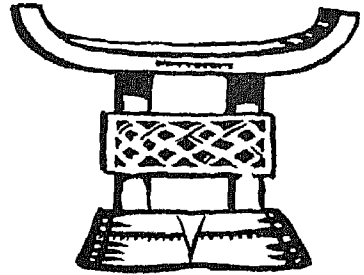
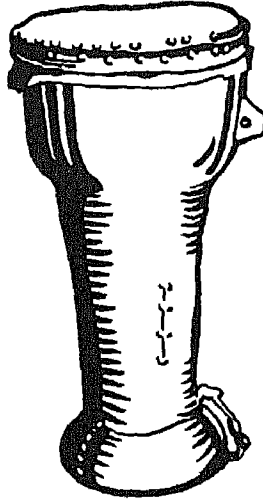
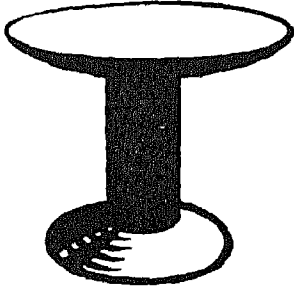
3. The Witwatersrand.—The gold miners of the Rand have obtained gold to the value of hundreds of millions of pounds. It is estimated that much more remains in the ground than has been taken out of it. The reef of gold has attracted prospectors and capitalists, who have been untiring in the investigation of its surface The possibilities of further areas for gold have been only part of their work they have also discovered its diamonds and its coal, its farms and its orchards The farms and orchards, obviously, were not found ready made, but the search for minerals has led to the development of the farms and orchards.

4. The Premier Diamond Mine.—This is about twenty-three miles from Pretoria and was discovered by Sir Thomas Cullinan, in 1898. He will be recorded in history, not only for the discovery of this wonderful mine, but because of the great Cullinan diamond. This was found on June 25th, 1905, and it weighed 3,023 carats and measured $4\frac{1}{2}$ in. by $2\frac{1}{4}$ in by 2 in. It was cut into nine large and about a hundred smaller stones. Cullinan diamonds are in the crowns and sceptres of King George VI. and Queen Elizabeth To-day the mine resembles the crater of a volcano, and, since it began, it has produced diamonds worth tens of millions of pounds (*Carat*=$\frac{1}{24}$ part of an ounce for gold, and $\frac{1}{150}$ part of an ounce for diamonds.)

5. Coal.—Emphasise the value of coal to the Union.

(*a*) Lack of other fuel in the country.
(*b*) Great need for coal for ships rounding the Cape on the way to Australasia or Asia
(*c*) Shortage of coal in other parts of the southern hemisphere.
(*d*) Present supplies enable industrial concerns to have cheap electric power

6. Memory work.—(*a*) The Africans living at Mochudi sell baskets and pottery in the market. (*b*) There are diamond mines at Kimberley The diamonds are found in blue rock which is crushed and sifted by machinery (*c*) Africans work underground in the mines They live in compounds where they are well cared for (*d*) Gold is mined near Johannesburg in a ridge of hills called the Witwatersrand The grains of gold are crushed out of a rock called quartz (*e*) The discovery of gold and diamonds led to the building of railways and roads in South Africa (*f*) Ships call at Port Elizabeth for wool, ostrich feathers and diamonds (*g*) Durban is a noted coaling station. (*h*) Hundreds of South African wild animals live in the Kruger National Park.

7. Exercises.—(*a*) Describe the native town of Mochudi (*b*) What use do the people make of the market square? (*c*) Tell how the first diamond was discovered in South Africa (*d*) What is the name of the famous diamond town? (*e*) Why did the first diamond seekers have rough times? (*f*) How are the diamonds obtained now? (*g*) Where is the largest diamond mine in the world? (*h*) Tell all you know about the Cullinan diamond (*i*) In what three ways are diamonds useful? (*j*) Pretend that you visit a native compound and describe what you see. (*k*) What is the name of the chief gold town in South Africa? (*l*) Where is the gold mined? (*m*) How is it taken out of the quartz? (*n*) What do travellers see when they draw near Johannesburg in the train? (*o*) What goods are sent away from Port Elizabeth? (*p*) Which is the chief coaling port of South Africa? (*q*) What city is the capital of the Transvaal? (*r*) Tell all you know about the Kruger National Park (*s*) What would you like to see in Cape Town?

SKETCHES FOR THE BLACKBOARD

WOODEN STOOL — DRUM COVERED WITH LIZARD SKIN — WOODEN PILLOW

ELEPHANT TUSK — WEST AFRICAN DRUMMER — GRAIN MORTAR

V. BRITISH EAST AFRICA

PICTURE REFERENCE

THE Class Picture for this chapter is a Sudan Cotton Field (No. 94 in the portfolio) It is described in the Reference Book The illustrations on the opposite page show a Native Family in Kenya and a Market Scene in Kikuyu The low beehive-shaped huts have frameworks of rough poles running lengthwise and crosswise, and the spaces between them are filled in with red clay. The thatch is of dry grass A woman in the doorway is grinding maize On the right stands a warrior, with spear and buffalo hide shield. The markings on the shield show to which tribe he belongs, and how he has distinguished himself in leopard or in lion killing Notice the ear ornaments of the warrior and the armlets and necklaces of the women.

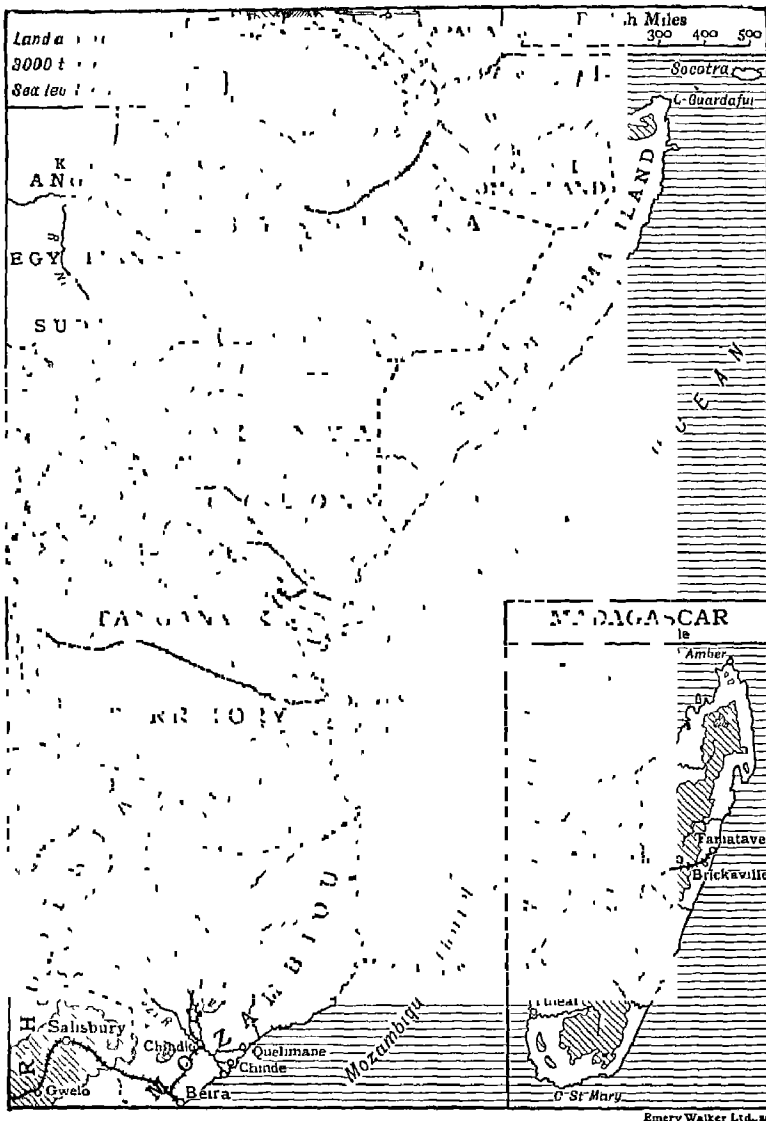
The Kikuyus are an important tribe who live in the Kikuyu reserve between Nairobi and Mount Kenya They hold markets once or twice a week in many parts of the reserve, and sometimes a thousand Kikuyus will gather together on the market ground. On the left of the lower picture is the "jewellery department," where necklaces and bead rings hang from a bar between two posts. In front a girl is holding up her leg while a skilled workman coils wire round it Another standing farther back is enjoying the same treatment. Notice the number of women with ringlets of beads for ear ornaments Everyone is very busy, but there is no quarrelling or disorder (Let the children look again at the Class Pictures of African Men and Women, Nos. 88 and 89 in the portfolio)

INTRODUCTION

The East African Plateau.—Between Abyssinia in the north and the Zambezi river in the south stretches the lofty plateau of the great African lakes. One of the most notable features of this vast plateau is the southern portion of the Great Rift Valley. This immense valley extends from the Jordan in Palestine, through the Dead Sea, Red Sea, and Abyssinia as far south as the Zambezi The rift is a fracture which has been caused during the formation of a fold in the earth's crust. Within the valley lie the long narrow lakes of Rudolf, Nyasa, Tanganyika, Kivu, Edward and Albert. Along the eastern margins of the lakes are the lofty extinct volcanoes of Mount Elgon, Mount Kenya and Kilimanjaro. Between Lakes Edward and Kivu the western rift valley is blocked by active volcanoes. (The snow-capped mountain mass of Ruwenzori between Lakes Edward and Albert is not of volcanic origin) The Great Rift Valley

THE GREAT RIFT VALLEY

Native Family in Kenya

Market Scene in Kikuyu

EASTERN AFRICA

On the east the plateau descends by steep terraces to the coast lands of the Indian Ocean The coast plain varies in width from a few miles near Mombasa, to 150 miles in Kenya Colony Parts of the Eastern Plateau are included in the British possessions of Uganda Protectorate, Kenya Colony, Tanganyika Territory, Nyasaland and Northern Rhodesia.

Climate and productions.—As the whole of the above countries lies within the tropics, the temperature of the *coastal plains* is hot at all seasons of the year, the rainfall is heavy, the products are rubber, sisal, cotton, tobacco, yams, bananas, etc Mangrove trees and coconut palms are common The most important tree is the Pencil cedar, the sawing of pencil slats for export is an important industry.

The temperature is an area of blistering heat, steaming forest swamps and low river courses, which combined make an unhealthy climate for Europeans

It should be noted that the immense Lake Victoria is not a rift valley lake, but is a vast hollow in the general level of the tableland

on the *plateau* is warm at all seasons; the rainfall is plentiful, but is less than that of the plains. In the drier eastern parts of the plateau are stretches of poor grasslands and scrublands, with gum acacias and other drought-resisting plants. Here the tsetse fly also helps to make the territory unsuitable for a large population;

[Reproduced by courtesy of H M. East African Dependencies

POINT DUTY AT KAMPALA, UGANDA

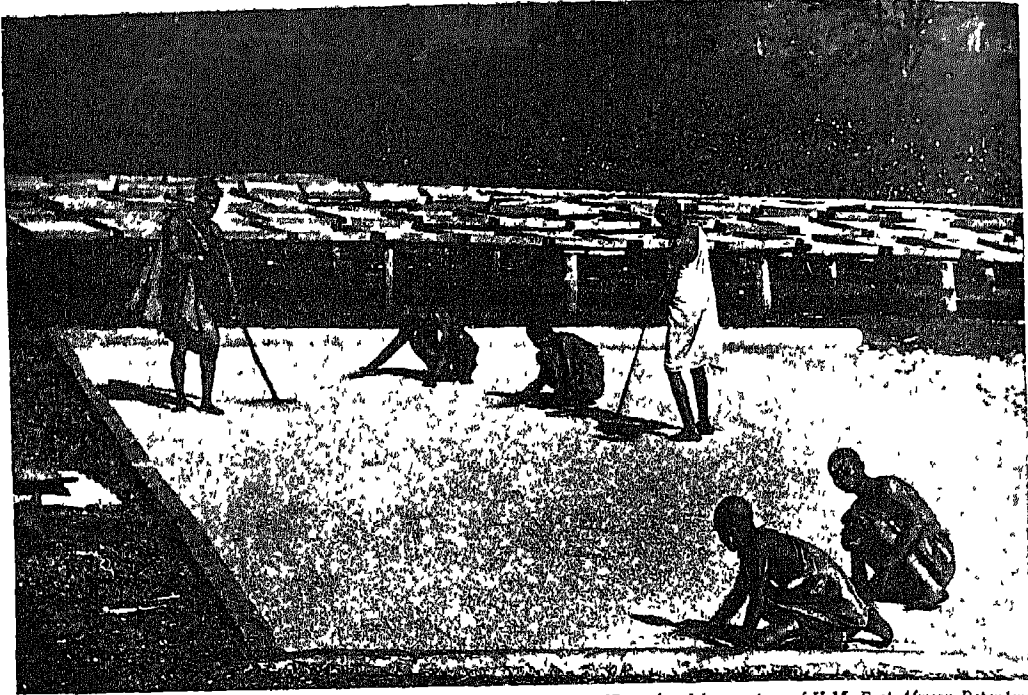
the scrublands are the natural home of antelopes, lions, rhinoceroses, zebras and other wild animals A part of the great game reserve in Kenya Colony lies in the scrublands between the coastal plains and Nairobi On a railway journey from Mombasa to Nairobi it is common to see antelopes and other wild animals staring at the train

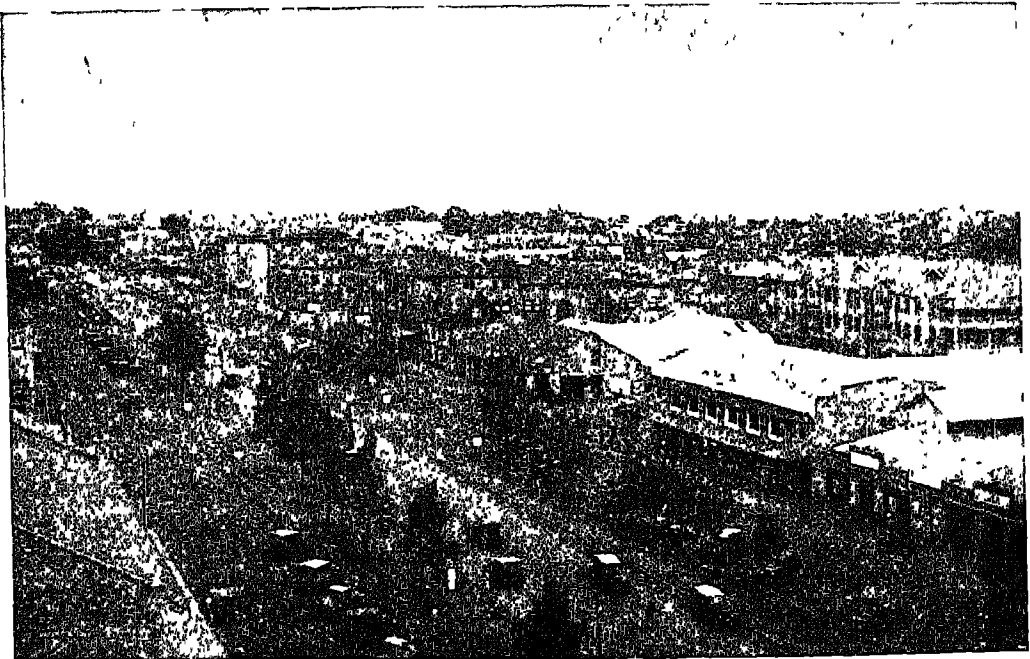
The bulk of the people live on the *uplands*. Here the soil is fertile and the pasture lands rich The wandering herdsmen rear cattle, goats and sheep, their chief food is milk and meat, and their dwellings are skin tents. In the settled and moister parts of the uplands are cultivated maize, wheat, barley, coffee, fruit, flax and other crops

It is of importance to note that although these East African possessions are in the neighbourhood of the equator, the upland portions are suitable for the cultivation of European crops, and where the climate is temperate and bracing, Europeans can live in comfort. But, generally, the climate of East Africa is not suitable for Europeans, as malaria is very common. The Africans suffer a good deal from sleeping sickness, produced by the bite of the tsetse fly, which also prevents the keeping of horses, cattle and mules.

Winter sports such as skating, ski-ing and tobogganing are possible on the slopes of Mount Kenya during the winter months, indeed a booklet is published called "Winter Sports on the Equator in Kenya Colony"

Uganda.—This Protectorate has a diversified surface of lofty plateaus, snow-capped mountains, vast swamps, dense forests, and plains and wide lakes The region about Lake Victoria consists of hills and valleys, the valleys being generally occupied by papyrus swamps or dense forests. Most of Uganda is fertile and well-watered, and 75 per cent of the country is under cultivation The total population is about four millions, of whom 2,000 are Europeans

Cotton growing by the Africans, known as the Baganda, has brought great prosperity to the country, which has more schools, better roads and a higher standard of living than any other part of East Africa British officials live at Entebbe, an attractive town

[*Reproduced by courtesy of H M East African Dependencies*

DRYING COFFEE—EAST AFRICA

[*Reproduced by courtesy of H M. East African Dependencies*

SIXTH AVENUE, NAIROBI

on Lake Victoria Kampala is the Baganda capital, notable for its two cathedrals and the famous Makerere College for African students.

Kenya Colony, through which runs the equator, extends from Uganda to the Indian Ocean. The coast is well provided with natural harbours, Mombasa being the chief. The harbour is situated on the eastern side of an island of the same name, and through it passes the whole of the trade to the African countries bordering Lake Victoria and Lake Albert It is often called the "Gateway of East Africa" Kilindini harbour on the other side of the island is the finest sheltered and land-locked harbour on the east coast of Africa

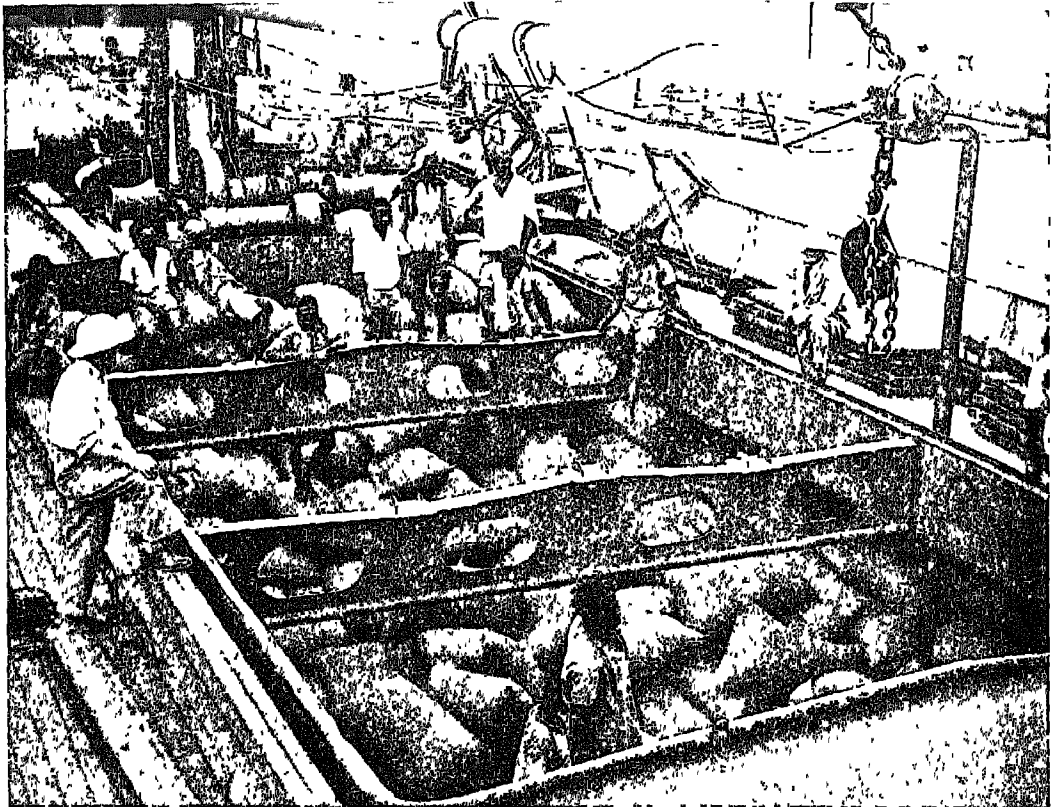
Owing to its high elevation a large part of the western country enjoys a temperate and bracing climate, and the Colony is more suitable for European residence than any other part of tropical Africa

The elevation of Kenya Colony ranges from sea level to snow-clad mountains, consequently there are many varieties of climate and vegetation.

Nairobi is the capital It is built at the foot of the Kikuyu hills, 5,452 feet above sea level, and commands magnificent views of Kilimanjaro and Mt Kenya Nearly all the whites are British, and the town has most of the amenities of a European city. The two main thoroughfares are Government Road and Sixth Avenue Indians own numbers of shops and offices; there is an Anglican cathedral, a natural history museum, and an Indian bazaar which covers nine acres. Parklands is a residential suburb for Europeans. The exports of Uganda and Kenya Colony include cotton (mostly from Uganda), coffee, fibres, hides and skins, grain and oil seeds. Much of the trade is in the hands of the Indians The population is about 4,000,000, of which 24,000 are European settlers and 60,000 are Arabs and Indians The presence of the large number of Indians in the Colony is mainly due to the following causes: (1) Their ability for trade, the nearness of their country across the Indian Ocean; the suitability of the climate (2) Some 25,000 Indians of the labouring class were employed in the building of the railway, and the greater number of them have remained in the Colony

In the highlands are large estates used for the production of coffee, sisal, maize, wheat and barley The banana, maize and sweet potatoes are notable foods in the African reserves. The main railway runs from Mombasa through Nairobi to Kisumu on Lake Victoria. One of the branch lines runs to the Magadi soda "lake," which contains enormous solid deposits of carbonate of soda There is a regular steamship service between Kisumu and Entebbe. Many good motor roads have been made, and others are in course of construction, for "Trade follows the Road" in Africa. There are several great game reserves in the scrublands of Kenya Colony. Kikuyu is a famous missionary centre.

The **Masai** is one of the best-known native tribes of the East African Plateau. They were once a savage warlike people who subdued all tribes with whom they came in contact. The warriors wear skin shoulder-flaps and ostrich feather aureoles; their weapons are huge thrusting spears, knob-kerries and oval shields. The Masai were practically ruined by a cattle disease called rinderpest, which in 1890 wiped out their herds of cattle, and the people died of starvation in great numbers. The Masai now live quietly in the reserve set apart for them.

Tanganyika Territory lies mainly between the great rift valley lake of the same name on the west, Lake Victoria and the Indian Ocean. Near the edge of the plateau is Kilimanjaro, which is the highest peak in Africa The mountain region embraces every degree of climate from tropical to polar; the middle zone is unsuitable for European settlement. The coast is difficult of approach, owing to the numerous coral reefs and changing sandbars at the river

[*Reproduced by courtesy of H M East African Dependencies*

MARINE SERVICE S S. "NYANZA" LOADING COTTON SEED, LAKE VICTORIA

mouths. Dar-es-Salaam is the chief port, with a small but perfectly sheltered harbour. It is the terminus of the Central Railway which runs from the coast to Kigoma on Lake Tanganyika Ujiji, four miles from Kigoma, is an important lake port and military station, and one of the best towns in the African interior The historic meeting between Stanley and Livingstone took place here in 1871.

The rainfall is generally less than that of most tropical countries; roughly there are six climatic levels, consequently there is great variety in the productions. Sisal hemp cultivation is the most important industry in Tanganyika The hard fibre of this plant, the *agave*, is made into binder twine, ropes, mats, sailcloth, etc In recent years a large area of bush country has been developed under a government scheme for the cultivation and transport of ground-nuts by modern methods. The nuts yield an oil valuable for cooking, making fats, and conserving sardines. the residue is compressed into feeding-cake for cattle Sesame is an annual plant grown for food All the large coast towns have mills, worked usually by hydraulic power, for expressing the oil from the seeds In Europe sesame oil is used as a substitute for olive oil

A great deal of the small trade along the coast is in the hands of Arabs and Indians. The chief exports are sisal, cotton, hides, skins, copra, coffee, wax, ground-nuts The chief imports are cotton piece-goods and foodstuffs.

It is worthy of note that the great lakes form a sort of second coastline By them is carried on a considerable traffic to and from the neighbouring Protectorates and other countries The native craft are usually clumsy, round-bottomed dugouts, which are very apt to roll over if at all heavily laden

Zanzibar is a particularly fertile coral-formed island off the coast of Tanganyika. With the smaller island of Pemba it forms the Zanzibar Protectorate Zanzibar is the most important trading centre in East Africa, though it is declining in importance and population in consequence of the development of the harbours of Mombasa and Dar-es-Salaam on the mainland Zanzibar first gained its commercial importance as a centre of the slave trade, but it now trades chiefly in cloves, besides gathering up and re-exporting the coast trade of copra, ivory, rice, etc Zanzibar really acts as a great storehouse of East African trade The islands of Zanzibar and Pemba yield seven-eighths of the world's clove produce

The Nyasaland Protectorate consists of a strip of territory to the west and south of Lake Nyasa, about 520 miles in length and 50 to 100 miles in breadth. By far the most important part of the Protectorate is the Shiré Highlands. These consist of an irregular chain of mountainous country running from north to south for about 90 miles. The soil is fertile and well watered, the rivers are mostly torrents, but the torrent valleys contain magnificent timber The great drawback to the trade of Nyasaland is that it has no coastline The chief settlement is at Blantyre, which is joined by rail through Chindio to Beira, the chief port of Mozambique Goods can also be sent by river steamer to Chinde at the navigable mouth of the Zambezi The means of transport other than by rail are varied. Lake Nyasa is an excellent waterway, merchandise is carried sometimes by ox wagons, sometimes by native porters Oxen and donkeys can be employed only in regions free from the tsetse fly. Travellers may still use the *Machila*, a hammock slung on a pole and borne by a team of two to eight carriers (See blackboard sketch page 527) Despite the luxuriant growth and the tropical rains many miles of motor roads are maintained, there are also aerodromes or prepared landing-grounds at important centres The principal exports of Nyasaland are cotton, tobacco and tea The Protectorate has the reputation of producing the highest grade upland cotton in the world Owing to the difficulties of transport none but the most highly priced and least perishable products can be marketed at a profit.

The Anglo-Egyptian Sudan has been under the joint control of Britain and Egypt since 1899 It is a vast land of over one million square miles in extent, but for the most part it consists of inhospitable desert, scantily peopled by wandering tribes The settled population is mostly found along the banks of the White Nile and its tributaries, the Blue Nile and the Atbara Extensive irrigation works based upon the Sennar Dam on the Blue Nile have enabled 800,000 acres to be cultivated, including one of the largest cotton-growing schemes in the world The tropical zone consists mostly of savanna and open forest traversed by motor roads, with regular services during the dry season. The Anglo-Egyptian Sudan is the chief source of the world's supply of gum arabic and ivory. The gum arabic is got from the forests of acacias which extend along the south of the Sahara desert These acacias are well fitted to live in this dry and arid region. Their roots go down twenty feet or more so as to reach the deep-seated water supplies The gum is produced by the tree to protect itself from boring insects and from animals feeding on it, any crack or break in a tree is promptly gummed up, and there is no loss of precious water thereby The Sudanese rear large numbers of cattle on the grassy lands in the neighbourhood of the rivers, the principal grain is durra, a kind of millet used for making bread.

Khartum is the capital and chief trading centre in the Anglo-Egyptian Sudan. It is situated on the tongue of land near the junction of the Blue and White branches of the Nile Here General Gordon met his death, and the city now contains the Gordon Memorial College, in addition to other fine public buildings—a cathedral, European shops, football grounds, cinemas and a zoo Omdurman, on the opposite bank of the White Nile, is a famous, crowded old-world town. Here may be seen a continual stream of swarthy caravaneers and countless craftsmen working in leather, ivory and silver with primitive tools. At Omdurman Lord Kitchener in 1898 won the great battle which wrested the Sudan from the hands of the Dervishes.

CHILDREN'S STORY

Native peoples of British East Africa.—A man who knew very little about the animals of other lands once went with his wife to the Zoological Gardens in London, where he saw a giraffe for the first time Its long neck reached up over the top of the cage and almost to the ceiling of the house, and from that lofty height it looked down at the small human beings walking on the floor. The man gazed up open-mouthed at the great animal, and when at length he had got the better of his amazement he said, slowly, "Wife, I don't believe there *is* such a creature!"

The land of giraffes, elephants, zebras, buffaloes and lions is East Africa. If you look at the map of Africa and run your finger along the equator line eastwards, you will discover Uganda and Kenya Colony side by side, near the great Lake Victoria. South of Kenya look for Tanganyika, Nyasaland and Northern Rhodesia; and north of Kenya find the Anglo-Egyptian Sudan. All these countries in East Africa belong to the empire, and both white and black men live in them, as well as the "big game" which so astonished the visitor to the Zoo.

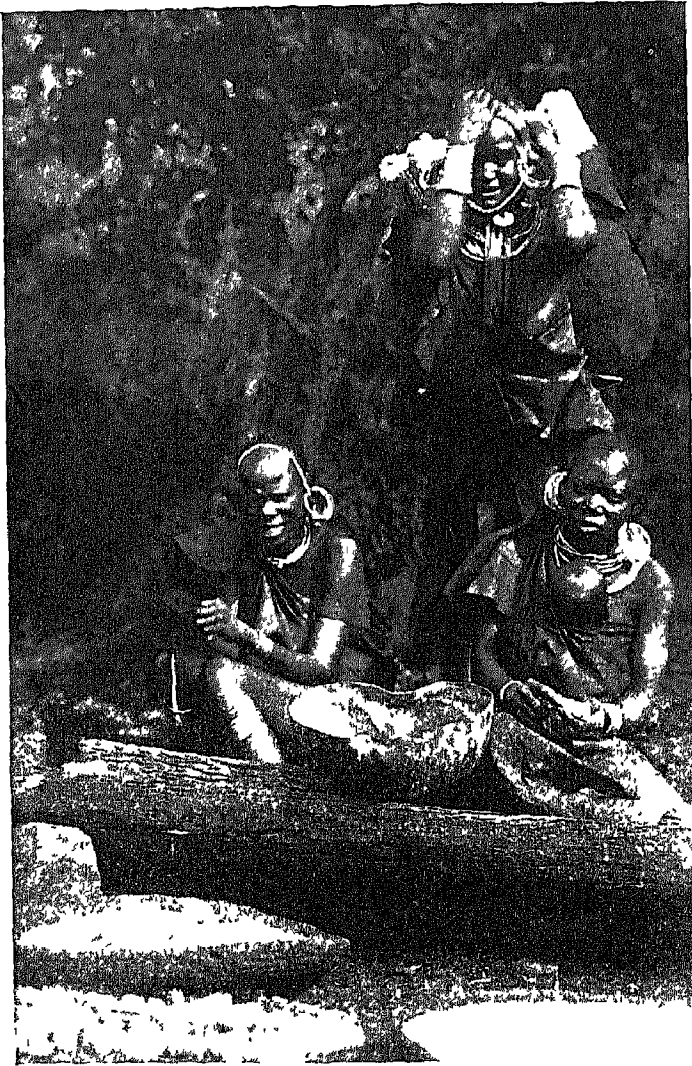
Now let us look again at the pictures of African people (Class Pictures Nos 88 and 89). The man who is cutting sisal lives in Tanganyika. This country is not far from the equator and the weather is always very hot At one season it is very rainy, too, great bushes grow thickly and the grass is twice as tall as a man The dense growth is good for wild animals and beautiful birds, but it contains fierce insects called tsetse flies These cause cattle to die by their bite and the people cannot keep them for milk or to help them with their work It is better in the higher parts of the country and there the Africans grow orchards of coffee trees or work in big plantations of sisal You can see in the picture the long leaves like swords of the sisal plant; the man takes care to keep away from their sharp spikes Later on, we shall see what he does with the leaves he is cutting White men are helping to make Tanganyika still more useful for the African people. They have brought powerful machines to tear up the bushes and clear the land Then the people grow fine plantations of peanuts British people buy the peanuts to make into margarine and soap, and the Africans have good wages and there is money for motor roads, and for better schools and homes for dark-skinned boys and girls

"Fuzzy Wuzzy" is a friendly name for special people living in the east of the Sudan, among the hills which border the Red Sea. They are not Negroes, for their hair is curly and their skin lighter than Negroes' The Fuzzy Wuzzies fought fiercely against the British in Egypt and the soldiers gave them the name because of their fluffy hair It is soaked in sheep fat and in it is stuck a long bone hairpin for a comb The man in the picture has a sword with a cross hilt, like that of a Crusader of long ago, and a round shield of thick leather He rides a white camel and feeds it most carefully, spreading out a cloth so that its food of grain will not be wasted The Fuzzies are quite peaceable now, some of them herd sheep, camels and goats as the Arabs do, while others work at Port Sudan or in the cotton fields. They are

FUZZIES OF THE SUDAN

kind and friendly to visitors and like to listen to the radio and have their photographs taken Sometimes they give a display of a fierce sham fight or perform sword dances in which men leap up and down and make cuts in the air at one another, but they never try to inflict a wound

Kenya lies to the north of Tanganyika and is a land of several different African peoples Most of it is very hot but far inland it is high and cool enough for white people to live there In the picture an African woman of the Kikuyu people is picking red coffee berries for a white farmer. She calls her petrol tin a *debbi* and is paid for every one she fills You can see that she is different from the Zulu woman Her head is shaved so as to leave only a tuft of hair on the crown, she is very fond of ornaments, too, and wears clusters of rings hung from her ears, a necklace and bracelets. When she goes to market she does not carry goods on her head, but packs them in a carrier which hangs from an oxhide strap round her forehead and rests on the middle of her back. In this way she will carry as much as sixty pounds of bananas, sweet potatoes, sugar-cane and maize

The market place is an open patch of green close to a village Most of the goods for sale are laid out on the ground and the traders are Indians who have come to live in Kenya. They buy the goods of the Kikuyu women who then go round the market to do their shopping They choose strips of cotton material for clothes, salt to make their food tasty and as much firewood as they can carry. Wood is very precious, for the village people have cut down the forest trees to make room for gardens. There are sure to be some goats and a few lean sheep for sale also, while in a special corner bead rings, bracelets and necklaces will be seen dangling from a string between two posts. The women always pay this stall a visit and some stop to be fitted with leg bracelets of shining copper wire. At all times the dark-brown people laugh and chatter as they step among

[Reproduced by courtesy of H M East African Dependencies

KIKUYU WOMEN PREPARING FOOD

and then on to huge Lake Victoria

Uganda is on the other side of Lake Victoria, which with its tropical islands, its steamships and fishing boats seems almost like a sea The people are known as the Baganda and many of them grow fine fields of cotton This brings much money to Uganda and the country is the best in East Africa for its roads and schools and modern ways Notice how success has helped the farmer's wife in the picture She has learned to bring up her little sons in a clean, healthy way, and her manner of dressing is like that of white people Her home, too, is not a dark round hut, but is a neat bungalow Not all the people are as modern as she is, for most own only small plots of ground. They grow bananas, beans, coffee and sugar in the red soil and keep cattle with long horns and round humps Sometimes they use the huge banana leaves to keep off the rain or to wrap up their babies A noted thing about Uganda is the use of drums of all shapes and sizes They make the music at weddings and dances, take the place of church bells, and are used for sending messages and calls of alarm from one hill top to another Sometimes they warn the people against wild beasts, for Uganda is a famous country for lions, leopards, elephants, crocodiles and other animals.

Rhodesia is the most southern country of East Africa. Maize is the chief food of the

the heaps of goods around them, every one as busy and as good tempered as can be.

The Kikuyu woman in the picture lives with her husband on the farm of a British settler A railway passes the farm and she often sees a train puffing up the long slope to the town of Nairobi where many white people live It comes from the sea coast far away and climbs through desert and forests

family of the woman in the picture and she is preparing flour to make into cakes of porridge First she put some grain in the wooden vessel by her side, then crushed it with the stamper. Now she is sifting the meal before washing it, then drying and then stamping it again By working together and chatting happily African women make light of this long daily task.

A native family of Kenya.—Karodi is fourteen years old From his father's hut he can see, far away in the distance, the snow-capped peak of Mount Kenya. He lives with his little sister and brother in a part of Kenya called the Kikuyu reserve, and his father has a small herd of cattle and goats. Karodi wears an apron of skin which his mother has softened by rubbing with a mixture of oil and clay.

His mother wears two pieces of skin, one wrapped over her shoulders and the other as a skirt The edges of her skins are prettily decorated with beads and shells She has coils of wire round her knees and ankles, and a wire collar standing out like a frill round her neck. Her pink bead earrings are so large that she supports them by a band across the top of her head, and she also wears two long necklaces of beads Her head is shaved all over excepting for a patch of hair on the top, which is carefully twisted into a pattern and stuck down with oil and clay Her hair has just been freshly dressed, and will not need doing again for three months.

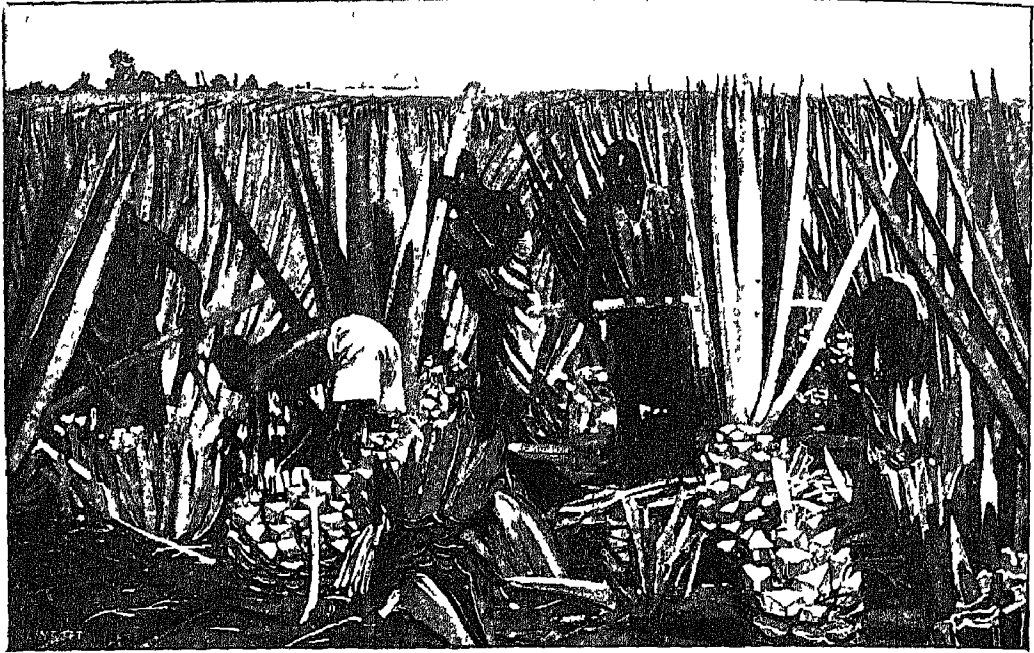
Karodi is very fond of his mother, who is a bright and cheerful little woman His father is a great hunter, as the stripes on his shield show, and Karodi longs for the day when he will have a sword and shield too, and a feather head-dress, or perhaps even a lion's mane, which only the bravest warriors of the tribe may wear

When the tribe moved to its present district in Kikuyu, Karodi and another boy had to drive the cattle and goats while his mother carried all the furniture of the hut on her back, keeping the heavy load in place by a strap passed round her forehead Karodi afterwards helped his father to bind the poles of the new hut strongly with tough fibres of plants, and fetched some of the grass with which his mother thatched it

Every morning Karodi has to drive the herds out to pasture and watch during the day that they do not stray into gardens or into marshes where they might sink in deep mud Now that he is fourteen, he has to go without his dinner, to harden him for manhood Often he and the other boys light a little fire. Then they cook some sweet potatoes or bananas in the ashes, and sit round talking of what they will do when they are men.

While Karodi minds the herd his mother and the other wives tend their *shambas* or gardens They have cleared away the wild bushes and weeds with their hoes, and are growing some fine crops of vegetables On the edge of their clearing is a clump of banana trees waving long, wide green leaves. One part of the garden is covered with flowers, having ivy-shaped leaves and pretty pink blossoms like wild convolvulus This is a crop of sweet potatoes. The roots of the plants are cooked, and Karodi likes to eat them hot and mashed with melted *ghee*—an oily sort of butter. He has to collect armfuls of the trailing leaves every evening, and give them to the cattle and goats for food.

There are patches of mealies, and millet, and many kinds of beans—tiny green ones, black, white, brown and pink speckled ones. Karodi's mother has also planted some ground nuts, known to many white children as "peanuts" or "monkey nuts" They are called ground nuts because after the flowers have bloomed, their stalks bend downwards into the earth and the nuts grow underground like potatoes They are very different from coconuts, which grow on the lofty coconut palms In Africa people dig for nuts and climb for them as well

In other parts of the garden are the tall, scented flowers of the tobacco plant, and

[Reproduced by permission of the Controller of H M. Stationery Office

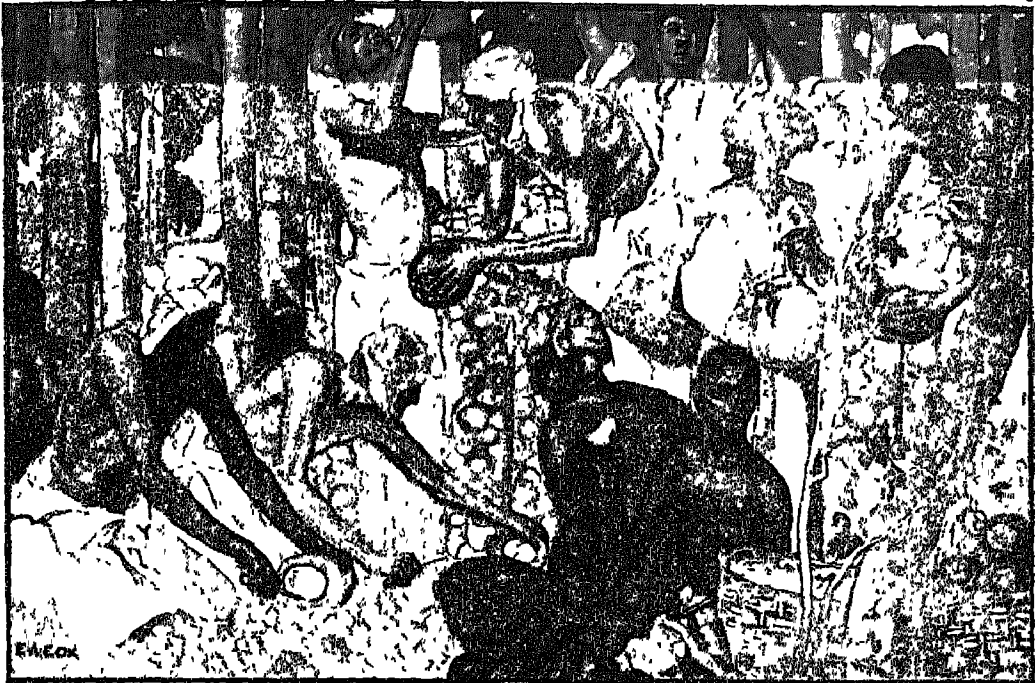
SISAL IN EAST AFRICA

enormous pumpkins, red and pink and yellow, that are either cooked and eaten with their leaves or hollowed out into calabashes for food and drink. When used for drinking, the stem forms the mouth of the bottle and a piece of mealie cob is pushed in for a cork. At the far end the garden slopes down to a river, and this spot is full of canes tufted at the top The canes turn red when they ripen and then Karodi carries some away with him to his herding and sucks out the sweet pith, for they are sugar-canes.

Karodi's mother has extra gardening to do just now, for two of the other wives are away looking after the dairy of a white farmer who has a fine herd and a coffee orchard on the other side of Mount Kenya. This also means that she has a heavier load of vegetables to carry to the market, but she does not mind for she always enjoys market day Karodi and his father went with her the last time, Karodi pulling along a goat for sale and his father carrying three or four chickens by the legs. In return for the goat, Karodi's father bought himself a fine pair of brass wire earrings which had been made by a man of the Masai tribe. His mother brought home a good supply of salt, of which Karodi was allowed to have a delicious taste.

Soon afterwards Karodi's father has to go on a journey and he leaves Karodi in charge of the herd Three days later the boy misses a goat. It has vanished in the night. Two days after that a kid is taken

"The thief is a wild beast," says Karodi to his mother. "I must do my father's work and slay it."

He sits up and watches through the nights, and at length the creature comes again. Karodi hears the terrified bleating of a goat and slips out of the hut carrying his father's spear. He follows the animal's tracks in the bright moonlight, treading lightly for fear

[*Reproduced by permission of the Controller of H M Stationery Office*

THE EMPIRE'S COPRA

of alarming the beast and being savagely attacked by it After a long journey the animal settles down in a bushy lair and devours its prey greedily. Then when it is gorged and sleepy Karodi springs upon it and thrusts the spear through the creature's throat, holding it down in spite of its fierce struggles.

Thus the brave boy kills a leopard, and when his father returns, he gives his son a spear and shield for himself. On the shield Karodi paints his first decoration and becomes a young warrior of his tribe He never has to mind the herd in the daytime again.

Sisal.—Have you ever noticed the carefully wound balls of twine hanging one above the other on a long cord in a stationer's shop? The story of their manufacture is a very strange one.

In many parts of Kenya, both on the hot, damp coastal lowlands and on the high tableland farther inland, large fields of sisal hemp plants are grown. These plants, as you can see from the picture, have long, sword-shaped leaves When the plant is about eight years old, a pole like an enormous asparagus shoot grows out from its centre The pole branches into flowers which seed and then fall off, leaving behind them hundreds of tiny plants called *bulbils.* The parent plant then dies, and the bulbils are carefully tended in nurseries until they have grown strong and healthy. Then a stretch of land is ploughed and the bulbils are planted in lines about two yards away from each other. They grow for three years and are then ready for cutting

African workers armed with large knives cut off about seventy leaves from the bottom of each plant, tie them in bundles and carry them to trucks which run on trolley lines laid through the plantation. A single man will cut two or three thousand leaves in a

day After the first cutting, two cuttings of twenty leaves on each plant takes place every year for eight years, and then the plant sends up its pole, it flowers and seeds and eventually dies

The trucks of sisal leaves run downhill to a long shed which is the fibre factory The leaves are placed on moving tables which carry them to a great machine Here the skin and fleshy parts are torn away from the fibres by steel knives. Water flowing through the machine washes the fibres white and carries away the waste into a drain. The clean, wet fibre is then hung out on sisal poles, and when dry it goes through a brushing and beating machine, being finally pressed by machinery into enormous bales weighing two cwt. each More than three tons of fibre are obtained from an acre of sisal during the eight years of its life

The plant will grow fastest where there is most rainfall, although it can also stand long spells of dry weather, but it will not thrive in water-logged soil. No animals or insects will eat it because of the bitter juice in its leaves. Africans use sisal poles for the framework of their huts, and also for firewood.

When the sisal fibre has been brought overseas it is made into rope, twine and matting Half the rope in the world is manufactured from sisal fibre, and East African sisal is the best quality grown. (See blackboard sketch page 527.)

Copra.—If ever you go to Kenya you will sail in a big steamer down the Red Sea and across the Indian Ocean, with nothing in sight for hours and hours but vast stretches of heaving water At length the ship will make for harbour, and you will never forget your first view of Kenya. In place of the weary succession of waves you see "tall, stately, waving coconut palms," a new and very welcome picture.

Groves of coconuts were planted on the coral coast of Kenya by Arabs hundreds of years ago. The Arabs were clever gardeners, for they chose spots which suited the trees perfectly. There had to be a certain depth of soil above the coral; or if it were sandy land they saw that supplies of fresh water lay within reach of the roots; and they never planted trees on heavy or badly drained soils. They knew that the coconut palm fed through its roots, and so they grew plantations on the Kenya coast only where conditions were good When the soil was poor they enriched it with manure, and they planted the trees in straight lines with ten yards' space between them just as white planters do to-day

The Arabs grew coconut plantations for their own needs, but the products from those grown in Kenya nowadays go to supply the needs of people all the world over The coconut palm is one of the most useful of all trees, both for trade and for the people who grow it Its milk provides drink and its kernel food. The dried kernel, called *copra*, is made into margarine and soap The thick outer coat of the nut, called *coir*, is used for matting and rope, and the wood of the tree for dwellings, boats and furniture. Coconut palms begin to bear nuts when they are six years old. The nuts are picked every two months, about forty being taken from one tree every year (The Children's Story of cotton is told in Volume I, page 472.)

TEACHING HINTS

1. The tropics.—In dealing with a tropical area such as East Africa, it is essential that the conditions, as affecting European life, should be emphasised Particular attention should be given to such points as the following —

(*a*) The need for head protection from the sun.

(*b*) The use of light khaki or drill clothing for men, and loose-fitting washing dresses for women. Men wear shorts and high boots. The boots are a protection against mosquitoes

(*c*) Thin vests are necessary between the shirt and the skin

(*d*) Drinking water and milk should be boiled
(*e*) Meat should be cooked rather overdone than underdone
(*f*) Mosquito doors and windows should be shut both by night and by day
(*g*) Tinned provisions need special attention
(*h*) Light but strong waterproofs are necessary
(*i*) *N B.* Hot weather is continuous throughout the year.

2. Effect of altitude upon temperature.—The simple rule that temperature falls 1° F. for every 300 feet rise above sea level indicates that high tropical regions may have the temperature of temperate latitudes. Thus, at Nairobi, about 5,500 feet above the sea, the mean temperature is only a little higher than that of the English summer. It must be remembered, however, that altitude also affects the density and pressure of the air. To those accustomed to living under normal atmospheric pressure, the reduction of air density is rather a serious matter and may be prejudicial to health.

3. Co-operation of whites and native peoples.—It is important to note that white and native peoples are on friendly terms in most parts of the world There is no living together in the true sense of the word, but there is harmony in the interworking. Natives supply the labour for working the tropical regions in which white people are few in number They are employed in mines, plantations, factories, transport and domestic service, or in the legal, medical, teaching, etc , professions according to their qualifications.

4. Copra.—The great demand for oils of all kinds has led to a wonderful development of coconut plantations in tropical coastlands The uses of coconut products should be emphasised:—

(*a*) *For white people* —

(*a*) Use of coir, the outer fibre
(*b*) Use of copra, the dried kernel
(*c*) Value of coconut oil and desiccated coconut.
(*d*) Importance of the whole fruit

(*b*) *For native peoples*·—

(*a*) Use as a food
(*b*) Use of plant for materials for dwellings, boats and utensils.
(*c*) Use of copra for barter for obtaining European products.
(*d*) Manufacture of arrack, the fermented juice.

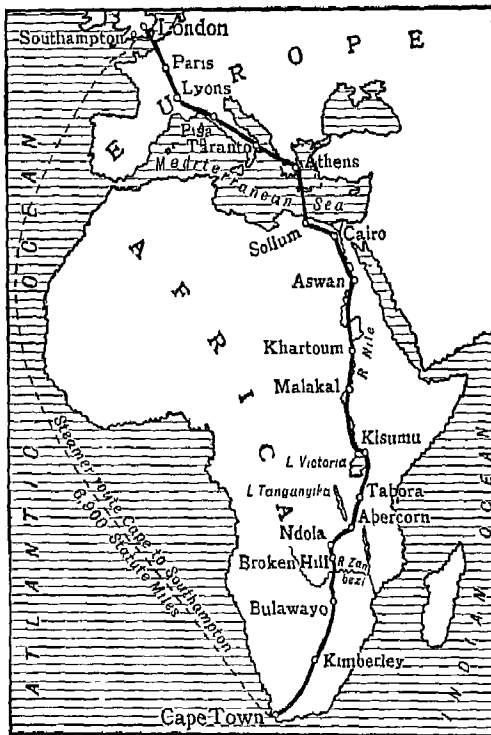
5. Cotton.—Emphasise these points concerning cotton, the world's most important fibre.—

(*a*) Found in practically every home in the world
(*b*) Cotton material is the chief clothing in hot lands where a large part of mankind lives
(*c*) Obtained chiefly from the United States, India and Egypt
(*d*) Cotton plant not only supplies fibre but also seed from which oil can be extracted.

6. The motor car in newly developed regions.—It is interesting to see how the motor car and wireless have altered the conditions in large areas where agriculture and pastoral work are the chief occupations of the people. This has been referred to in the talks on Canada, Australia and South Africa. Settlers, normally many miles from their nearest neighbours, can quickly cover long distances with the aid of the motor car, and can be brought into touch with the outer world by means of the radio To a large extent isolation has been removed It is said that the white population of Kenya owns more motor cars per head than any other population in the world.

7. Aeroplanes.—The tremendous advances in types of aircraft and their uses are making incalculable changes to human relationships and effort throughout the Empire. To-day huge air liners that can undertake single flights of 4,000 miles or more bring the most remote areas within reach of the benefits of scientific progress Deserts, jungles, mountain ranges are crossed, supplies, often involving machinery of several tons weight, being carried to distant peoples Seeds are sown by 'plane over wide areas, crops are sprayed to eradicate pests, and quick services now operate between towns instead of long hazardous treks of a few years ago Every year Empire territories in Africa are brought more closely in touch with one another and the homeland, and in this respect it is interesting to note the pioneer work of Sir Alan Cobham In 1926 he planned the route between London and Cape Town, his famous return journey taking fifteen days, a time that contrasts with the present four days' trip.

8. Memory work.—(*a*) Elephants, buffaloes, lions, leopards, giraffes and zebras are called "big game" They are largely found in Kenya in East Africa. (*b*) Africans of Kenya rear cattle and goats, and grow crops of sweet potatoes, maize, beans, pumpkins and tobacco. (*c*) The women carry on their backs heavy burdens held in place by straps passed round their foreheads Many work in the dairies and fields of white farmers. (*d*) The sisal leaves are cut from the bottom of the plant with knives. The fleshy parts of the leaves are stripped from the fibres by machinery. (*e*) Rope, twine and matting are made from sisal fibre (*f*) Margarine and soap are made from copra.

9. Exercises.—(*a*) What animals are known as "big game"? (*b*) Where are the homes of these creatures? (*c*) Describe the dress, ornaments and hairdressing of a Kikuyu woman. (*d*) What work is done by a Kikuyu boy? (*e*) Tell of all the vegetables grown by Karodi's mother in her garden (*f*) What do you know about ground nuts? (*g*) How do the women carry their goods to market? (*h*) Describe how Karodi won his spear and shield (*i*) What are bulbils? (*j*) From what part of the sisal plant are the fibres obtained? (*k*) What takes place in a sisal fibre factory? (*l*) What are the uses of sisal? (*m*) Where do coconut palms grow in Kenya? (*n*) On what kind of soil do they thrive? (*o*) What is *copra*? (*p*) What part of the coconut is the *coir*? (*q*) Why is the coconut palm one of the most useful trees in the world?

SKETCHES FOR THE BLACKBOARD

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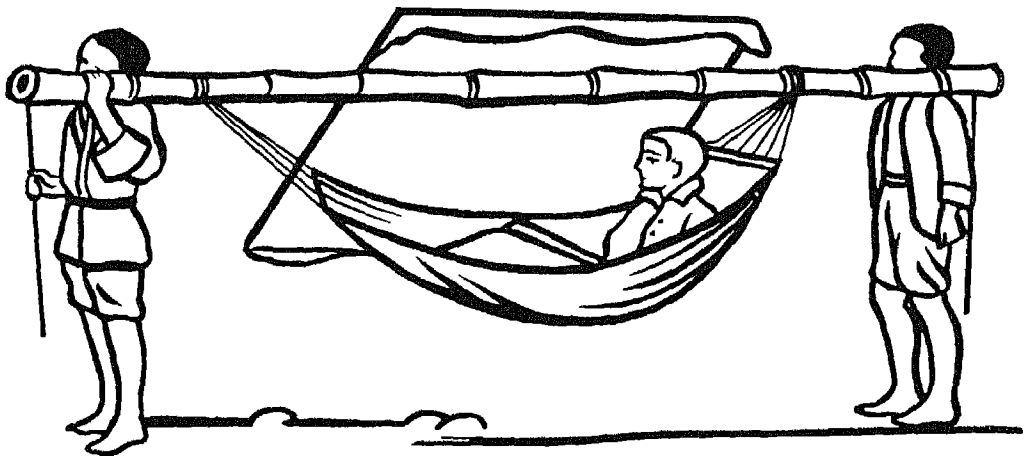
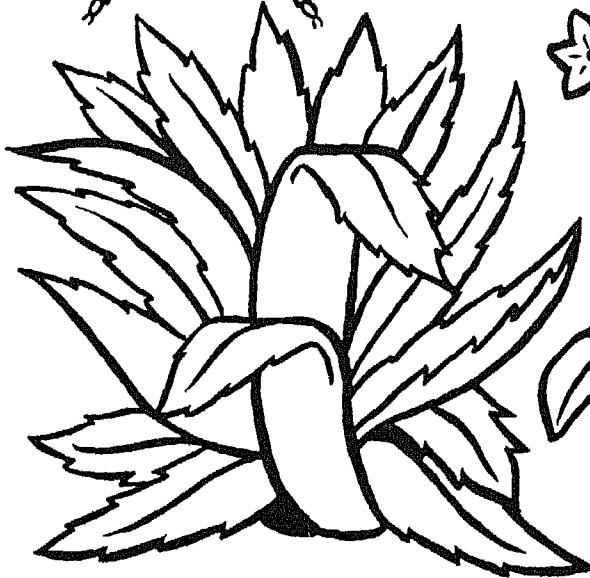
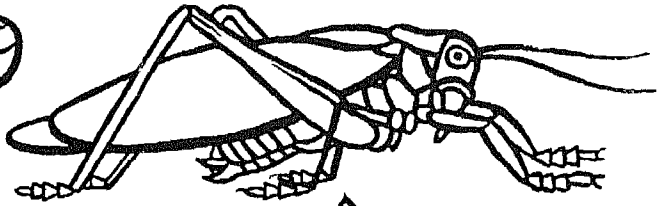
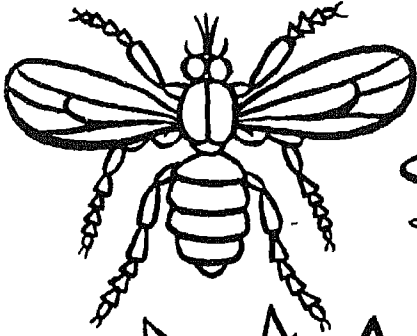
SISAL

LOCUST
TOBACCO PLANT

MACHILA (PALANQUIN)

VI. BRITISH WEST AFRICA

PICTURE REFERENCE

THE Class Picture (No. 96 in the portfolio) shows a scene in the Mud-made City of Kano, the most important one in Central Africa It is illustrated on page 542 and described in the Reference Book The illustrations on the opposite page show pictures of Africans Making Pottery, and of Freetown. The people making pottery are women and girls They live just north of the equator in western Africa The palms and great ferns that can be seen at the back of the picture show that it is a hot, wet forest country The soil is a soft, red clay, easily moulded into different shapes by the clever fingers of the potters. They make only household earthenware, such as water pitchers, round dishes and bowls, and when the rough vessels have been smoothed with wooden tools they are baked in the sun or in clay ovens. A woman in the background is kneading clay on a stone. All are wearing strips of cotton material for clothes, and turbans or scarves on their heads as a protection from the hot sun. The native house on the left is made of clay On the ground are two baskets of woven grass.

Freetown, the capital of Sierra Leone in British West Africa, is an important port and coaling station. Sierra Leone was once called "The White Man's Grave" because of its hot, wet, unhealthy climate, but now the fever swamps have been drained Freetown has grown up at the foot of a circle of hills The illustration is of the older shopping centre, showing the open stalls of wood and corrugated iron, and peoples of many races, the women with purchases balanced on their heads. Hundreds of slaves who had been set *free* came back from America and settled in and around Freetown.

INTRODUCTION

The Sudan is the general name for the zone of land stretching across Africa between the Sahara Desert on the north, and the equatorial forests of the Guinea coast and the Congo basin on the south. It extends from Cape Verde on the west, to the plateau of Abyssinia on the east. On account of the dark colour of the people this region came to be known to the dwellers of North Africa as *Bilad-es-Sudan*, or the *Country of the Blacks* The term has now been shortened to the *Sudan* There are, however, few Negro tribes that are really black, the greater number being various shades of brown.

The greater part of the Sudan belongs to the low plateau of North Africa, with considerable plains in the lower basins of the Senegal and Gambia rivers, which flow westwards to the Atlantic Ocean. The eastern part of this great zone, the Anglo-Egyptian Sudan, belongs naturally to the Nile valley

Climate and productions.—The climate and vegetation of Western Sudan and the countries on the Guinea coast vary according to the distance from the Sahara. The farther the distance from the desert the heavier is the rainfall, and the more fertile is the soil Much of the coastal region has a rainfall of over eighty inches annually, farther inland it varies from forty to eighty inches, the greater part of Western Sudan has an annual rainfall of ten inches to forty inches. [The average annual rainfall of London (England) is 24 inches] The temperature throughout this region is uniformly high. The cool season is very warm, and the

Making Pottery in West Africa

Freetown

summer or hot season is exceedingly hot. As the northern borders of the Sudan approach the Sahara Desert, sand dunes occur, farther south are grassy stretches with rocky ridges sprinkled with such drought-resisting plants as acacias, tamarinds, aloes and varieties of cactus, while in the watercourses and moister hollows are woods and cultivated areas South of this savanna country is a great forest zone This dark, rank forest belt, from which palm oil, kola nuts and fine timber are obtained, extends inland for some 250 miles On the coast the land is low, the heat great, and the rainfall plentiful. Eastwards from Cape Palmas the Guinea current of the ocean piles up the sand, forming bars to the coast streams, which become choked with growths of mangroves, papyrus and reeds The three most useful harbours are at Freetown, Takoradi and Lagos.

Different parts of the coast have been named by European traders according to the products for which the districts were formerly noted There are the *Grain Coast* (from *grains* of pepper), west of Cape Palmas; the *Ivory Coast*, the *Gold Coast*; and the *Slave Coast*

The Niger.—East of the Slave Coast, the delta of the Niger extends for over 200 miles along the coast The delta begins at Abo, 100 miles from the sea, and from this point the river spreads out like the fingers of a hand The streams forming the "fingers" are not only joined one with another, but with the independent rivers that empty into the ocean on either side of the delta. Canoes and small boats can navigate the entire region On either side of the streams are swamps, and along the banks grow rows of mangrove trees which shut out the view with their heavy, dark green foliage Monkeys and parrots chatter in the trees, the streams and banks are haunted by crocodiles, hippopotami and rhinoceroses Throughout this low-lying country, the only roads in the jungle are paths made by animals or the native Negro tribes. These are very lowly people, whose chief food is yams and bananas Once the delta is left the scenery is more pleasing There are trees of enormous size, graceful feathery palms, villages peeping from the shadow of the forest, and well-cultivated clearings The middle zone of the Niger, part of which is flooded each year, is noted for its splendid crops of yams, the staple food of the region Farther inland along the river, the country rises into a series of mountains, with deep valleys and rugged peaks covered with stunted trees. The chief river of the Guinea coast, with the exception of the Niger, is the Volta

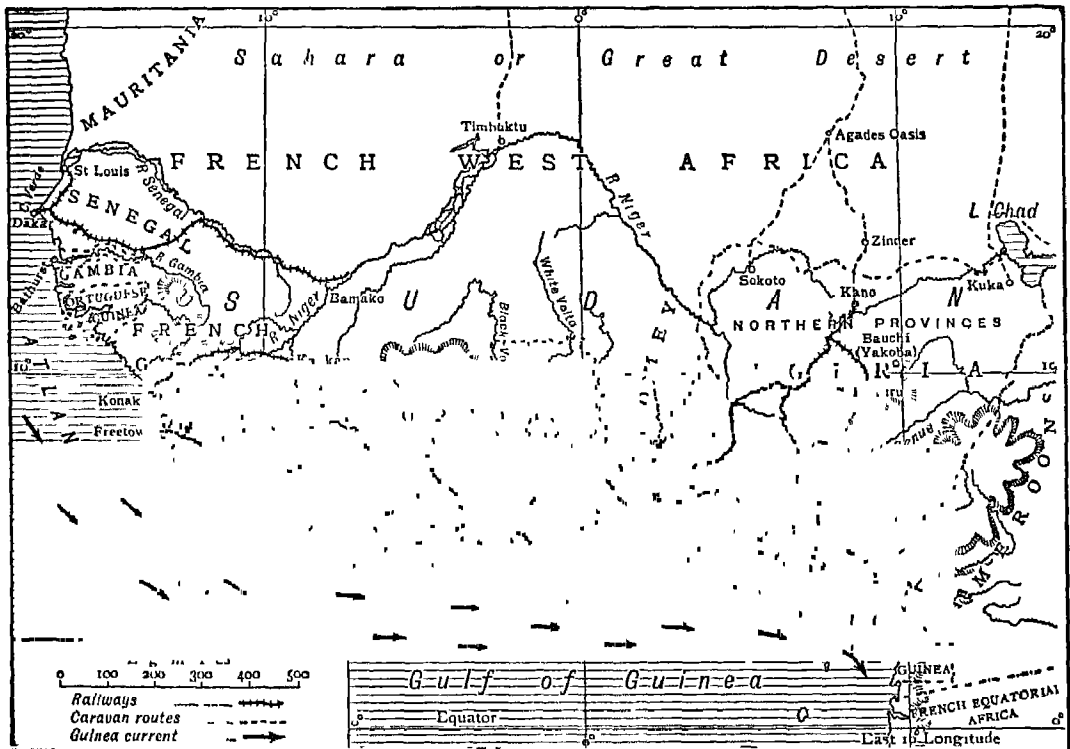
Industries.—The principal industry of the people is agriculture. Durra, or sorghum, a small grain of the millet kind, is the chief African corn A good deal of cotton is grown, and also indigo for dyeing the cotton cloth which in certain parts is woven on hand-looms, wheat, maize, beans and kola nuts are also important crops. In the wetter south, the forests produce ground nuts, palm oil, shea nuts and rubber Cattle are reared in many parts but chiefly on the drier plateaus of the north and east.

The hot, moist, equable climate of the Upper Guinea coast is very unhealthy on account of the dangers of malarial and yellow fever, in the absence of a pure water supply and modern methods of sanitation. In some parts much has been done within recent years to control the diseases and modernise the towns The coastal district of Sierra Leone is no longer known as "The White Man's Grave" The characteristic tree is the oil palm, the fruit of which supplies palm oil, an important article of export

People.—The Sudan is the special home of the typical Negroes, with their well-known physical advantages for living under tropical conditions On the plateaus of the interior live the more hardy races, who are a mixture of the true Negroes and the Hamites of North Africa Their occupations are chiefly concerned with trade, agriculture, and cattle raising. The two most important of these

mixed races are the Fulani and the Hausas The Fulani are the ruling class They are an intelligent race of people, handsome, oval-faced, and of a chestnut-brown colour, their native courts are presided over by cadis who are learned in Mohammedan law. Their chiefs, called emirs, generally take much interest in the welfare of the country by constructing good roads, sinking wells, attending to the education of the people, etc Some Fulani are cattle rearers, wandering with their herds from pasture to pasture

The Hausas are among the finest of the negroid races, that is, races of mixed Hamite and Negro descent They mainly dwell in the region between the Niger and Lake Chad. For many centuries they have been noted for their trading, their crafts, and their remarkable cities, like the great walled city of Kano The Hausa grows cotton and weaves it into many-coloured robes; he makes fine "morocco" leather; excels all other Africans in trade, and gives much attention to education The Hausa language is spoken by 15,000,000 people of Mohammedan faith The fine stalwart men are largely recruited as police by the Europeans on the Guinea coast

Of the true Negroes those in the remote forest regions are still superstitious, much under the power of witch-doctors and considerably "backward" in the way of life Others, especially towards the coast, have made remarkable progress in recent years Most still cannot read or write, and speak one of the many languages with perhaps, as in the British areas, a smattering of English; most still live in little dark huts of red clay, thatched with bundles of grass stalks Even so, new ways of work, improvements in the villages and education are increasing at a great rate Hundreds of new government

WESTERN SUDAN AND UPPER GUINEA

schools have been built, training centres have been established for adults, and at Achimota near Accra a most famous educational centre has come about, with up-to-date primary and secondary schools for boys and girls, a fine college for teachers and a university college for training doctors, engineers, high government officials, etc During the Second World War great steps were made in improving the supply and transport of valuable products. palm and pea-nut oil, cocoa, rubber and tin Instructors went from the training centres to teach modern methods of crop-growing and to develop new industries such as tile and pottery-making, leather-working and weaving of cotton cloth Training in healthy living and methods of fighting harmful insects was also given, and in Nigeria and the Gold Coast alone, 20,000 Boy Scouts were splendid helpers in the work

After the war African soldiers returned skilled as motor drivers and mechanics, telephone and wireless operators, all are taking part in the advance to modern ways An example is seen in the coal-mining area of Enugu in eastern Nigeria Here an improvement in the miners' huts led to a village of neat bungalows being laid out, complete with electric lighting, communal washing-places, a paddling pool for children and a hall for cinema shows, lectures and dances in the rainy season Thus in many ways the Negro peoples of the western Sudan, with the friendly co-operation of white advisers, notably in the areas under British control, are moving forward to an important future in world affairs.

Nigeria, the most extensive British possession on the west coast of Africa, extends from the Gulf of Guinea inland to the borders of the Sahara. It is nearly three times as large as the British Isles, and is more densely populated than any other country of its size in Africa It has a population of 20,000,000, of whom only about 3,000 are Europeans

Owing to the difficulty of travelling through the forest zone, highways from north to south are of recent construction and many trade routes within the Sudan pass from east to west The swampy, forest-clad nature of the delta of the Niger long hindered its use, but as Nigeria is under the British Government there is now a good boat service on the numerous rivers and creeks, there are also some well-made roads suitable for motor traffic into the interior In some parts of the north fine horned cattle are much used for pack transport, but elsewhere in Nigeria small donkeys are employed Owing to the presence of the tsetse fly, horses cannot be used in many parts of West Africa. Porterage by men is still largely used On the north-eastern borders of Nigeria, Lake Chad stands out like a salient into the dry zone. It forms an ample protection to the fertile land behind it, which has some of the best grain-growing properties of any land in the world The grain, *maskwa*, needs no rain. It is planted out in the vast swamps as soon as the accumulated rain water has subsided, and the grain grows rapidly without the further help of rainfall All the fertile land depends upon the protection of Lake Chad, and Lake Chad depends upon receiving a sufficiency of water from its tributaries

Lagos, the chief port of Nigeria, has been joined by rail with Kano and the vast tin-producing area of the Bauchi plateau. Nigeria has valuable mineral deposits: the people have worked lead, iron, and tin for centuries. Port Harcourt is joined by rail with the coal fields of Enugu, 150 miles inland At Lagos, which is also the capital, a deep channel has been made over the bar, to admit ocean steamers to the harbour Considerable trade is carried on with the Northern Provinces, and there is also a large trade by caravans which, coming from the Sahara in the north, and Kuka in the east, make use of Kano as the centre of trade. Kano is the most important city in Central Africa It is surrounded by a great wall, through which there are thirteen gates Kano is a centre of Mohammedanism. The Fulani, Hausas and other ruling tribes

are of that religion. It is estimated that there are 28,700 Mohammedan schools in the Northern Provinces of Nigeria. Cotton is largely grown in the neighbourhood of Kano, and cotton cloth is made, besides pottery, metal and leather goods "Niger morocco leather" is in great demand for book-binding purposes, it is largely shipped from the Niger. In the immense market place of Kano may be seen traders who have travelled 1,800 miles from the Mediterranean, by way of the Sahara

The chief Nigerian exports are *palm kernels, palm oil, tin ore, cocoa, cotton, hides and skins*

The demand for the products of Nigeria during the two World Wars brought wealth to the country. As a result many miles of railway and all-weather roads have been built, airfields laid down and a large number of primary and secondary schools opened

The Gold Coast Colony includes the Ashanti Colony and the Northern Territories Protectorate. The Gold Coast Colony might well be called the "cocoa coast," for within recent years cocoa has been the chief production and export Gold, which is obtained partly by dredging and partly by mining, ranks next to cocoa in order of value.

About 30,000 square miles of the Colony and Ashanti are covered with dense forests, and the lumber industry is progressing. There are excellent timber trees, like silk, cotton, mahogany, ebony, cedar, etc , as well as trees yielding palm oil, rubber and gum copal

The importance of cocoa has brought surprising changes within a few years Large areas of the forest region have been opened to make way for cocoa orchards run on scientific lines by their Negro owners Villages of neat houses supersede the huts of old and in place of head transport, once universal owing to the ravages of the tsetse fly among animals, convoys of lorries ply along well-engineered roads leading to the chief collecting stations. The river Volta, the most notable system of waterways, is navigated by many types of craft for some 900 miles

The chief coast towns are Accra, the capital, Cape Coast, Takoradi and Sekondi The first three are linked by rail with Kumasi, the capital of Ashanti, and all now have electric lighting and other modern services

The market place of Kumasi is of considerable importance, for it is the distributing centre for the whole of Ashanti. Market day is a lively and brilliant scene Hundreds of women in gaudy clothes barter their gorgeously coloured fruit and other wares amid a deafening hubbub Fine goldsmith's work is done in Ashanti, spinning and weaving and dyeing are carried on mainly in the Northern Territories; silk garments of great beauty and value are a speciality of Ashanti

Maize is an important crop. Even before daybreak the women in the villages may be heard pounding the corn in huge wooden mortars until it is reduced to a coarse flour. The moist, hot climate makes the Gold Coast and Ashanti considerably unhealthy The most prevalent disease is malaria. The Northern Territories, being drier, are less unhealthy, but here diseases of the respiratory organs, like bronchitis, are common, owing to the cold nights during the period of the dry easterly *harmattan*, which blows in the cool season.

Sierra Leone was so named by the Portuguese who, about the middle of the fifteenth century, discovered a high range of hills at the mouth of a river on the west coast of Africa This range they named the Sierra Leone, which means *Lion Mountain.* The name has since been given to the river and to the country through which the river flows For many years the slave ships of European countries came to the broad estuary and carried back Negroes, who had been brought to this point and sold by the chiefs to the whites, for work on the sugar and cotton plantations of America Later, the colony was used as a settlement for freed slaves, hence the name of its important

city is Freetown, which is the greatest seaport in West Africa, and a second-class imperial coaling station, with an excellent harbour. The principal trade is in palm kernels, kola nuts and oil In Freetown are English and other white people who have been attracted by trade and commerce Many have their residences on the hills, which rise in a mountain shaped like a sugar-loaf to a height of over 4,000 feet Pagans, Christians, Mohammedans, black, white and mixed races; Africans and foreigners; labourers, traders and professional men, all mingle in Freetown Kruboys from the coast region near Cape Palmas do most of the labour in the town and along the water front.

Rice forms the staple food of the country; fish is plentiful and in great demand It is no uncommon thing to see the Sherbro waters about the port limits boiling over, as it were, with immense shoals of moving fish.

Gambia, a British Crown Colony, forms the lower valley of the Gambia river. The capital, Bathurst, has a good harbour, but the only important product is ground nuts

CHILDREN'S STORY

In the west of Africa, a little to the north of the equator, the coast sweeps round in a great curve which forms the Gulf of Guinea Gold is found in the rivers of the Guinea Coast, and so the gold British coin worth twenty-one shillings, now no longer minted, was named a *guinea* after this district. The parts of the Empire which lie around the Guinea Coast are Gambia, Sierra Leone, the Gold Coast and Nigeria.

Native life—More than four hundred years ago white traders were busy in the Gulf of Guinea carrying away slaves from West Africa to America, to work in the cotton and sugar plantations Near the mouths of the chief rivers of the coast lived powerful black chiefs who collected the slaves for the white men and also exchanged palm oil for manufactured goods For many years white men were prevented from exploring the country by the cunning of these chiefs and also by the steamy, fever-ridden climate of the place

Black and white men in Africa now are friends. White men have journeyed inland and stayed in the country for two or three years at a time, though they cannot settle there because the heat is too great for them. They have, however, done much to improve the land. They have had swamps drained, railways built, and great areas of forest cleared for cocoa, oil palm and cotton plantations. The work on the plantations is done by Africans and the white men who are overseers, or government officers, live in the districts for a few years at a time.

If we could fly in an aeroplane from the Gold Coast northwards we should see below us first a stretch of foaming water where the Atlantic Ocean breaks on the shore of Africa, and then miles of hot, wet forests cleared here and there for native villages and for plantations of cocoa and rubber. Farther inland the forest would dwindle into stretches of bush with occasional clumps of trees and tall grass. Nestling here would be many more native villages surrounded by gardens and herds of cattle feeding on the grass. Gradually all the trees would disappear and the grasslands become poor and thin; villages would be scarce, and goats would take the place of cattle Finally we should come to a great desert.

The country changes in this way because the farther inland we go, the smaller is the amount of rainfall On the coast and in the forest the wet winds blowing from the Gulf of Guinea bring rain for nine months of the year The grasslands have six months of rain and six months of dry weather, and the nearer we approach the desert, the shorter the rainy season becomes, until at length rain hardly ever falls at all

In the dry season the wind blows from inland instead of from the sea, and after crossing the desert it carries along with it

clouds of fine sand. The people are so glad to have a change from the terrible damp heat of the rainy season that they prefer a dusty wind to a wet one, and call it the *harmattan,* or the "Doctor"

Many of the people of West Africa have dealt with white men for a great number of years and are more intelligent and better educated than the Negroes in other parts of Africa. Some of them are cattle breeders on the grasslands, and others have become shopkeepers, clerks, doctors and teachers in the towns, where they speak the English language and dress like white men

Those living in the forest build themselves simple huts out of materials that they find to hand Many use the red clay soil. They dig up large lumps, mould them into rough bricks and dry them in the sun Then they mix more clay with water into a soft mass, build their huts with the bricks and smear the soft, wet "mortar" over them to join them firmly together The roofs of the huts are thatched very carefully with large leaves and grass so as to withstand the heavy rain In drier parts the whole hut is made of grass

All the women make pottery and weave bags of grass The men fish in the rivers from canoes dug out of the trunks of trees. Crocodiles and hippopotami live in the streams. Hippopotami dive under the water and come up again at unexpected places When one of these great beasts comes to the surface underneath a canoe, he upsets the boat and throws everyone out into the river. People in canoes who see a family of hippopotami on the river bank keep as far away from it as possible

The women are very strong and some work as porters, carrying loads on their heads to the coast Often a woman may be seen plodding along to the nearest town with fifty or sixty pounds' weight of nuts or rubber on her head and a baby at her back. Some women weave coarse cotton cloth by hand for their clothes, and dye it with a blue juice squeezed from a plant. Others buy lengths of Manchester cotton material in the market in exchange for vegetables, and wrap it round their waists. Carrying weights on their heads makes the women hold themselves upright, and they walk in a very stately and graceful manner.

Cattle cannot be reared in the forest clearings because of the terrible tsetse fly. This insect lives among bushes and reeds and carries germs from sick animals to healthy ones, and also to men and women. Its bite brings on a serious illness called sleeping sickness. Thus excepting where a good road for a motor lorry has been made, forest produce has to be carried by Negroes, as oxen, buffaloes and horses would soon all be stricken down with disease

The Negroes of the forest work for white men by cutting down mahogany or ebony trees, or by tending the cocoa trees in the plantations. Some of them grow rice, sugar and sweet potatoes in their gardens Others collect wild rubber and oil palm fruits The women boil the oil palm fruits to obtain the oil, which collects as a thick layer of orange-red fat on top of the water, and is used by the people in place of butter The seeds of the fruit have hard shells round them which the women and children crack between stones in order to take out the kernels.

The oil palm.—The coast of Kenya in eastern Africa is planted with graceful coconut palms. In western Africa also, at the deltas of the Niger and other rivers of the Guinea Coast, large plantations of palms are grown, but here they are *oil palms.* As with the coconut palms, they were first found growing wild, and proved to be such valuable trees that now they are cultivated in many districts along the coast

The oil palm grows six times as high as a man, and has a straight trunk crowned with a tuft of feathery leaves The length of a single leaf is three times a man's height. From the leaf-bases hang bunches of bright red oval fruits, a large bunch often weighing fifty or sixty pounds Men climb the trees and pick the fruits carefully, as the

Oil Palm

juice of bruised fruits becomes bitter in flavour The fruits are taken quickly to the factory and plunged into hot water to soften them. Then they are whirled round and round in a machine which beats all the orange-coloured oil out of them This oil is afterwards used for soap making and for greasing delicate machinery.

The solid mass left behind in the machine is taken away and dried, and the nuts in their hard shells are then picked out of it. The nuts are dried again separately in the sun, and finally packed in bags for sale overseas. In the factories of Europe the kernels are taken out of the nuts The fat squeezed from the kernels is made into margarine, and the oilcake left behind is used as food for cattle.

In the hot, wet forests of the Guinea Coast thousands of oil palms grow wild, and the people depend on these trees for their supplies of so-called butter When cultivated in plantations the seeds are first set in sand beds, and the little plants do not leave their nurseries until they are a year old Then they are set out in lines, and bear fruit in their fourth year. All the plantations are tended by Africans and under the control of white overseers.

Cocoa.—Nearly all the cocoa we drink and the chocolates we eat are made from the cocoa of the Gold Coast, where there are the largest plantations of cocoa trees in the

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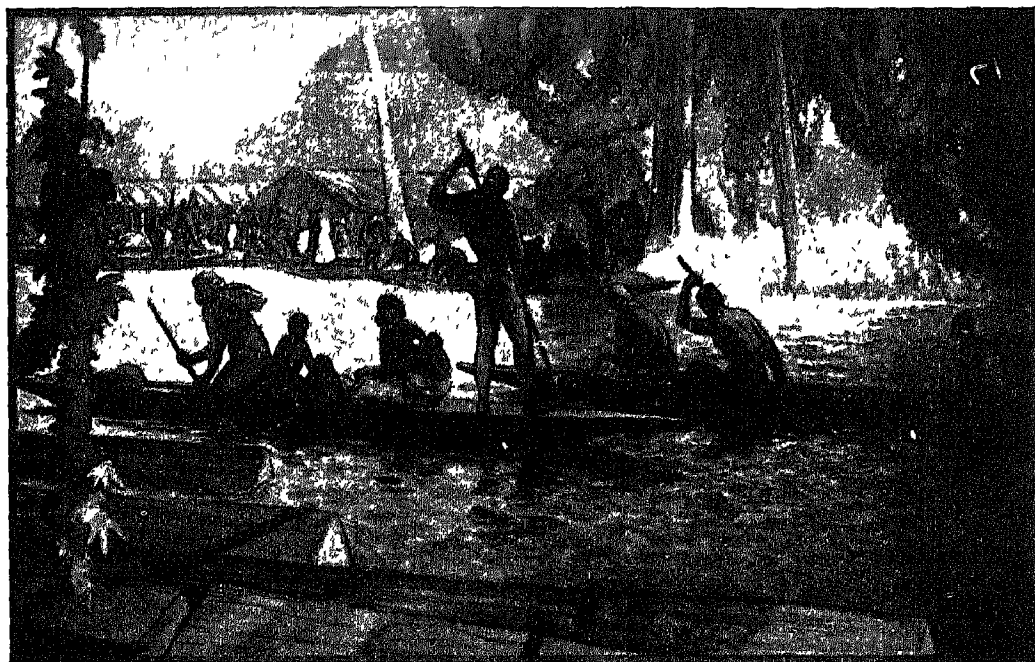
Gathering Cocoa Pods

world Great stretches of hot, wet forest have been cleared for these plantations Railways run from Kumasi, a large native town inland, to Accra and Takoradi, the Empire's cocoa ports Takoradi is a new port with a beautiful, deep harbour such as cannot be found elsewhere in western Africa, where the rough Atlantic beats on the coast in long lines of surf which make it impossible for steamers to come close inshore Generally when the bags of cocoa beans arrive at the coast they have to be stacked on wooden racks in a long boat manned by twenty men They are then covered with waterproof canvas and rowed two miles through the dangerous surf to the side of the liner waiting to bring them westwards to the big chocolate factories of Europe (The fuller story of cocoa is told in Volume I, chapter VII, page 462)

Mahogany.—Perhaps you may have seen for sale in furniture shops expensive polished tables of a beautiful, rich, red-brown colour They are made of a wood called mahogany, which is much prized by the makers of good furniture

Mahogany trees grow in hot, wet forests, and hundreds are found in the forests of West Africa They are immensely tall trees, with very hard, tough wood of a pinky-brown colour They have glossy green leaves and bear clusters of reddish-yellow flowers.

The Africans of the forests cut down the trees near the river courses, clear away the foliage and branches, and roll the enormous logs into the water They are floated down the rivers after being roped together to form great rafts The last part of their journey is the most dangerous for those in charge of the mahogany rafts, because at the river mouths they have to be guided over the treacherous surf to steamers anchored a mile or more away from the coast

The logs of mahogany are taken to Liverpool, and carried from there by train to

[Reproduced by permission of the Controller of H M Stationery Office

MAHOGANY RAFTS ON THE OLUWE

different parts of England. When the wood is cut and polished its graining is very beautiful and its colour deepens with age. Besides furniture, aeroplane propellers and the inside parts of ships are made of mahogany because it is so hard and strong.

FLAMINGOES

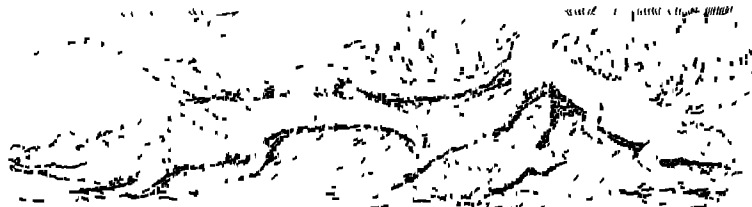
NOTES ON SOME AFRICAN ANIMALS

Antelope.—A graceful deerlike animal usually bearing long, ringed hollow horns which, unlike the solid antlers of deer, do not fall off every year. The largest is the hartebeest, which stands five feet high; the smallest is no larger than a rabbit with long legs Their natural home is the open country, where they depend on the swiftness of their running to save them from the lion, wild dog, hyena and other carnivorous animals Only males of the species shown in the illustration have horns.

PIGMY ANTELOPE

Crocodile.—A large lizardlike animal with the skin protected by horny overlapping plates; the mouth is furnished with a large number of conical teeth Found in the neighbourhood of rivers, lakes and marshes, spending most of its time lying on mud flats or partly under water. Crocodiles catch animals that come to drink, drag them under water to drown and then devour them. There are so many in the Limpopo that it is called the Crocodile River.

Flamingo.—A large bird, some six feet in height, with very long legs and a long neck; rosy plumage with black on the wings; beak sharply bent down at an angle Flamingoes are wading birds, and are found in great flocks by the margins of lakes and rivers, feeding on shellfish and green food When feeding the bird's head is turned upside down, and the curved beak acts as a scoop for picking up food The name is derived from the Latin *flamma*, flame, in reference to the bird's colour.

Giraffe.—An animal remarkable for the length of its legs and neck, found in desert regions of Central and South Africa. The tawny hide is handsomely marked with a network of light lines, the long narrow head is surmounted by short, skin-covered horns; the long tongue is used to grasp the twigs and leaves of

CROCODILES

GIRAFFE

trees on which it feeds. Owing to the length of the fore legs, the giraffe can only reach the ground with its mouth by straddling its legs wide apart.

Gorilla.—The largest of the manlike apes, found only in the forests of Western Equatorial Africa. A full-grown animal much exceeds the size of an ordinary man It is particularly savage and, unlike the chimpanzee, will not live long in captivity. Little is known of its habits in the wild state, but it is believed to live mostly on fruit, roots, eggs and young birds. It usually walks partly upright, supporting itself on the knuckles of its hands, the great toe is specially developed to assist in climbing among trees.

Gorilla

Hyena.—An ugly animal of the dog tribe; has shaggy hair, a broad head, strong jaws and teeth; it feeds on carrion, often following the lion to eat what he leaves Hyenas are striped, spotted, or brown The spotted or laughing hyena, the largest and fiercest kind, howls with a strange, unearthly laughter.

Hyena

Hippopotamus.—The largest fresh water mammal, belongs to the pig family It has a huge heavy body, enormous head, mouth and teeth, lives chiefly in the water by day and grazes on grass and water plants at night Its hide is used for making whips, walking-sticks and umbrella handles; the tusks furnish ivory, the flesh is excellent food.

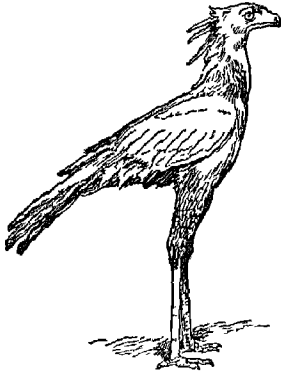
Mandrill.—Large species of baboon found in the tropical forests of West Africa. It is most curiously coloured· the nose is a brilliant vermilion, with bright blue swellings on either side; the skin of the hinder part is shaded with red and purple; the fur is olive brown with a dark crest on the head and a yellowish beard on the chin. The canine teeth are of great size. Mandrills go about in troops, and are said to live largely on insects.

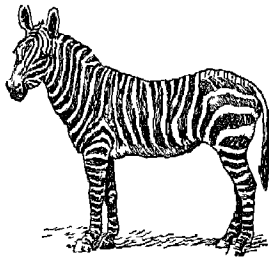
Mandrill

Rhinoceros.—The black rhinoceros, a native of Africa, is of land animals next in size to the elephant. It has two horns on its *face*; the skin is smooth and hairless. The Indian (see illustration) rhinoceros has one horn and a thick rough skin folded in places like an ancient coat of armour. It is usually found in thickets near streams, and it eats twigs and leaves. A large white variety inhabits the grasslands of the Sudan and the Congo Free State. The word *rhinoceros* means the *horn of the nose*

Rhinoceros

Secretary Vulture.—African bird of prey of the vulture type; stands over four feet in height, plumage is grey, white and black The name is derived from the crest of feathers upon the head, which are something like quill pens put behind the ears

It is found chiefly in East and South Africa, and feeds mainly on small snakes, lizards and insects.

SECRETARY VULTURE

Zebra.—An animal of the horse family found only in Africa. It is distinguished by the elaborate black striping on its tawny coat The common, or mountain, zebra of South Africa is heavily striped, the zebra of Somaliland is considerably larger than the mountain species and its stripes are narrow and numerous. Although many attempts have been made to break in and train zebras for riding and driving, the animal has never been properly domesticated.

ZEBRA

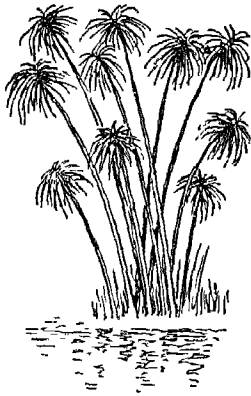
TEACHING HINTS

1. West and South Africa contrasted.—In this lesson it should be explained clearly that West Africa is not a country for white settlers such as South Africa is The heat of the sun rapidly evaporates the rain and so the air is always charged with a tremendous amount of water vapour. In such a climate white men cannot live long, although the work of doctors in fighting diseases, the draining of swamps, the building of modern villages and the introduction of government health and sanitary officers who inspect the food for sale, have made conditions far better than they used to be Many of the large trading companies now own fleets of motor lorries, and good roads have been constructed.

2. Native dwellings.—Let the pupils understand that native dwelling places must always be made of local materials In many cases in West Africa an abundance of red clay dominates the building operations and the roofs are thatched with whatever suitable thatching material is to hand In other areas an abundance of coarse grass determines that less serviceable structures are formed of that material, but the fact that grass predominates indicates that the rainfall is comparatively small, and that substantial buildings are not necessary In Ashanti walls are made of a double row of sticks placed about three inches apart and strongly interlaced into position The whole is then filled up and plastered with clay. Mud made dwellings are characteristic of other areas and these always have flat roofs to which access is obtained by a notched pole

3. The Harmattan.—In referring to this wind an opportunity arises for talking about the important effect of wind upon climate. It is the condition of the air around us that most affects our health and work A change of wind may make a wonderful difference to us in the course of a few hours. In India, the change of monsoon is a matter of life or death to multitudes

4. Papyrus.—A species of rush which formerly grew abundantly in the Nile delta, and is now a characteristic plant of the Upper Nile. The Egyptians formed their writing surfaces from woven strips of the pith of papyrus stems, which were pressed, dried and polished The writing was done in

ink made from animal charcoal and other substances applied with a reed The plant is ten feet high, and forms dense, almost impassable thickets. This, with other plants, makes the Sudd of the Nile

PAPYRUS

5. Caravan trade.—This is the oldest type of commerce known to the world and it is still the characteristic method in parts of Asia and Africa. In Africa the camel is still the beast of burden, and the caravan routes of the Sahara have their southern termini in West Africa Such termini are Timbuktu, Kano and Kuka, and these are important market centres Caravan routes disappear in the southern part of West Africa where there are numerous rivers, creeks and roads, and a few railways

6. Cocoa.—It is interesting to notice that the beverages tea, coffee and cocoa have been in use in Western Europe only for a few centuries. They are products of hot wet lands, and it was not until the "age of discovery" that the beverages became known to white peoples This product is frequently referred to as "cacao," which is an imitation of the word which the Mexicans used for the commodity as early as 1500. When the great Swedish scientist Linnaeus was naming and classifying trees and plants, in about the year 1735, he named the plant Theobroma Cacao, by which name it is known to-day Theo-broma is Greek for "Food of the Gods"

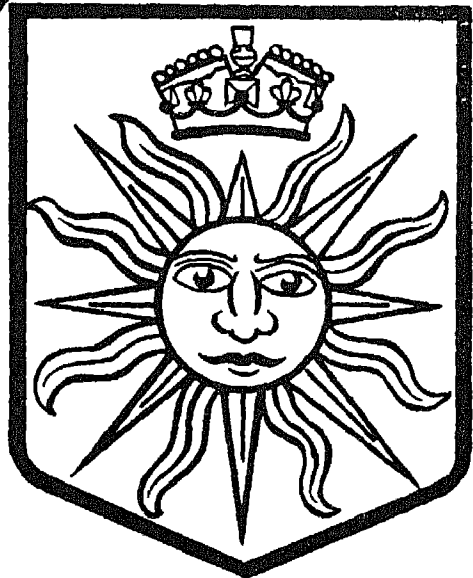
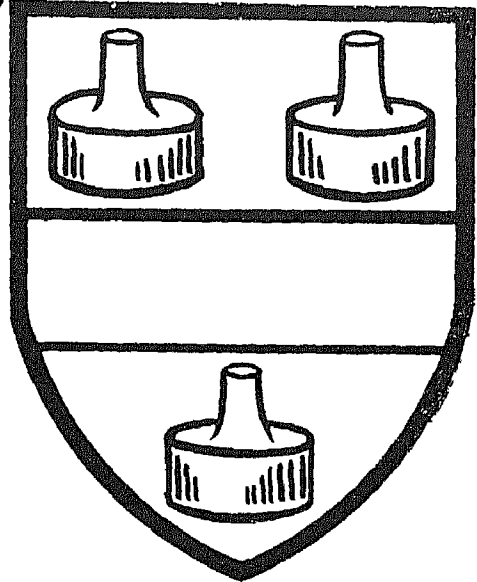
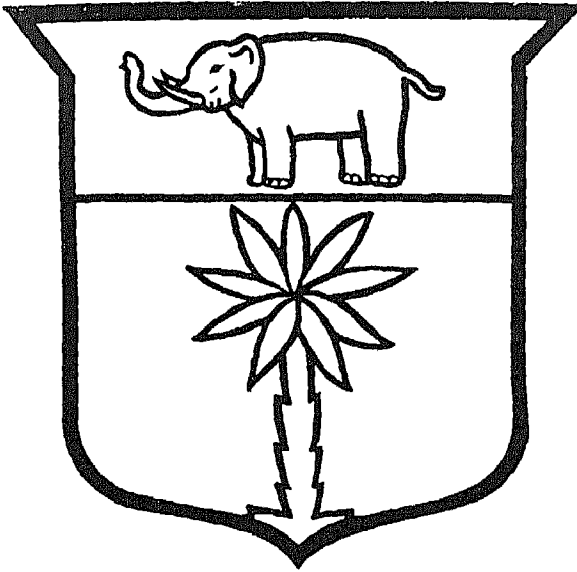
The original home of the cacao plant, and a region where it still grows wild to-day, is the northern part of South America. When Columbus discovered the New World he brought back to Europe this product, with many others. Cortes, when he penetrated Mexico in 1519, found that the Aztecs took no other beverage than chocolate flavoured with vanilla and spices. Another people who share with the Aztecs the honour of being the first great cultivators of cacao are the Incas of Peru Cacao was used by the Aztecs not only for the preparation of a beverage but also as a medium of exchange For example, they could purchase a good slave for 100 beans The Spaniards were the first European people to adopt the beverage and its use spread into France and thence into England.

7. Kola nut.—The kola or goora nut is the seed of an evergreen tree which is a native of tropical Africa. The tree is about forty feet high, and has large, leathery, oblong leaves pointed at each end, and sprays of pale yellow flowers The seeds, which are about the size of horse chestnuts, are contained in pod-like seed vessels The natives greatly prize the seeds for chewing, as they contain drugs which rouse them to action and help them to endure fatigue The seeds are also used as a condiment with food As the kola nut tree grows in the tropical south, the nuts are carried to the northern towns in baskets by donkeys. Great care is used in transport to ensure that the nuts do not dry up and spoil.

8. Memory work.—(*a*) British merchants have traded with West Africa for more than four hundred years (*b*) The hot, damp climate is unsuitable for white men (*c*) Great forests grow for many miles inland (*d*) In the forest clearings oil palm and cocoa plantations are cultivated (*e*) The people build huts of red clay. (*f*) Some women make pottery and carry loads on their heads

for long distances. (*g*) Negroes work in the plantations (*h*) The people of the grasslands beyond the forest rear cattle and grow crops. (*i*) The harmattan is a dry, dusty wind from the desert (*j*) Villagers boil the oil palm fruits and skim off the fat, which they use in place of butter. (*k*) Palm kernel oil is made into margarine. (*l*) More than half of the cocoa and chocolate in the world comes from the Gold Coast cocoa plantations. (*m*) Mahogany trees grow in the hot, wet forest, and their wood is made into beautiful furniture.

9. Exercises.—(*a*) Why did white traders first visit the Guinea Coast? (*b*) Why have white men never settled there? (*c*) What kind of plant life is found there? (*d*) What causes the heavy rainfall? (*e*) How does the country change farther inland? (*f*) What plantations are grown in the forest clearings? (*g*) Tell all you know about the harmattan. (*h*) Describe the building of a native hut. (*i*) What work is done by some women? (*j*) Why do they walk so gracefully? (*k*) How do they dress? (*l*) What work is done by some men? (*m*) What creatures live in the rivers? (*n*) Say what you know of the tsetse fly (*o*) What use do Africans make of the oil palm? (*p*) Explain the difference between palm oil and palm kernel oil, and say what is made from each of them (*q*) What do we get from the fruit of the cocoa tree? (*r*) In what part of the empire are cocoa plantations grown? (*s*) Tell all you know about mahogany

THE MUD-MADE CITY OF KANO, NIGERIA
(Class Picture No 96 in the portfolio)

Public Arms

Lagos (Palm Tree and Elephant)

Johannesburg (Three Gold-Stamps)

Sierra Leone
(Palm Tree and Lion)

East African Protectorate
(Sun in Splendour and Imperial Crown)

VII. INDIA—PEOPLES

PICTURE REFERENCE

THE Class Pictures (Nos 97 and 98 in the portfolio) show Men of India and Women of India Let the pupils examine the pictures and talk about them. They will then follow with interest the description of the people given in the Children's Story.

INTRODUCTION

Build.—The vast peninsula of India, some 1,576,000 square miles in area, is divided into two self-governing Dominions—Pakistan and India The former, in which the people are mainly Mohammedan by religion, consists chiefly of the north-western provinces and the greater part of Bengal, whilst the latter, containing mainly Hindu peoples, occupies the rest of the country. For geographical purposes, the word India will be used, unless otherwise stated, as a general term indicating the whole peninsula

The southern part of the peninsula reaches to within 8° of the equator, the tropic of Cancer passes almost through Calcutta and Karachi, and the northern boundary of Kashmir is about 36° north of the equator. Peninsular India is, therefore, entirely within the tropics, and the wide northern plain is subtropical in position The great northern area is about 2,000 miles wide, and, on the west, is about 1,000 miles from north to south. Calcutta is almost 90° east of Greenwich, so that its local time is six hours in advance of London time, but the standard time of the country is taken as five and a half hours in advance of Greenwich time

India has 6,000 miles of land frontier and 5,000 miles of sea coast It has an excellent position for sea trade with all parts of the world The shortest journey to Europe is via the Suez Canal The densely peopled lands of eastern Asia are reached via the Strait of Malacca and Singapore. Australia and Africa are easy of access.

The Indo-Gangetic plain, or the Great Plain of Hindustan, is bounded on the north by the mountain barrier of the Himalayas, which extends for 1,500 miles from east to west The forest and jungle at the foothills is the Terai. Mt Everest, 29,002 feet, is the highest peak in the world

The eastern frontier is guarded by long spurs of mountains extending into Burma; the western frontier by the Sulaiman and Hindu Kush mountains The only chinks in the land wall of defence are the Khyber Pass and the Bolan Pass in the north-west.

The Ganges, Indus and Brahmaputra have their sources near together in a small lake district on the north side of the Himalayas The Brahmaputra is the main river of Tibet, where it is called the Tsangpo. It flows through Assam and joins the Ganges to form an immense delta; here, on the seaward fringe, is the swampy jungle called the Sundarbans The Indus has five tributaries which flow through and fertilise the Punjab—or Land of Five Rivers The Irrawaddy is the great river of Burma.

The triangular-shaped part of India is the Deccan plateau, with the lofty Western Ghats facing the Arabian Sea, and the broken Eastern Ghats facing the Bay of Bengal The south-west coast is the Malabar Coast, and the east coast is the Coromandel Coast. The longest slope of the Deccan is eastwards The main rivers are the Mahanadi, Godavari, Kistna and Cauvery. To the west flow the Narbada between the Vindhya and Satpura Mountains, and the Tapti farther south. South of the Deccan is the

MEN OF INDIA

VILLAGE MAT MAKERS — A FRUIT SELLER

COPPER-SMITHS

(Class Picture No 97 in the portfolio)

WOMEN OF INDIA

WATER CARRIERS

WINNOWING RICE

A MODERN FAMILY

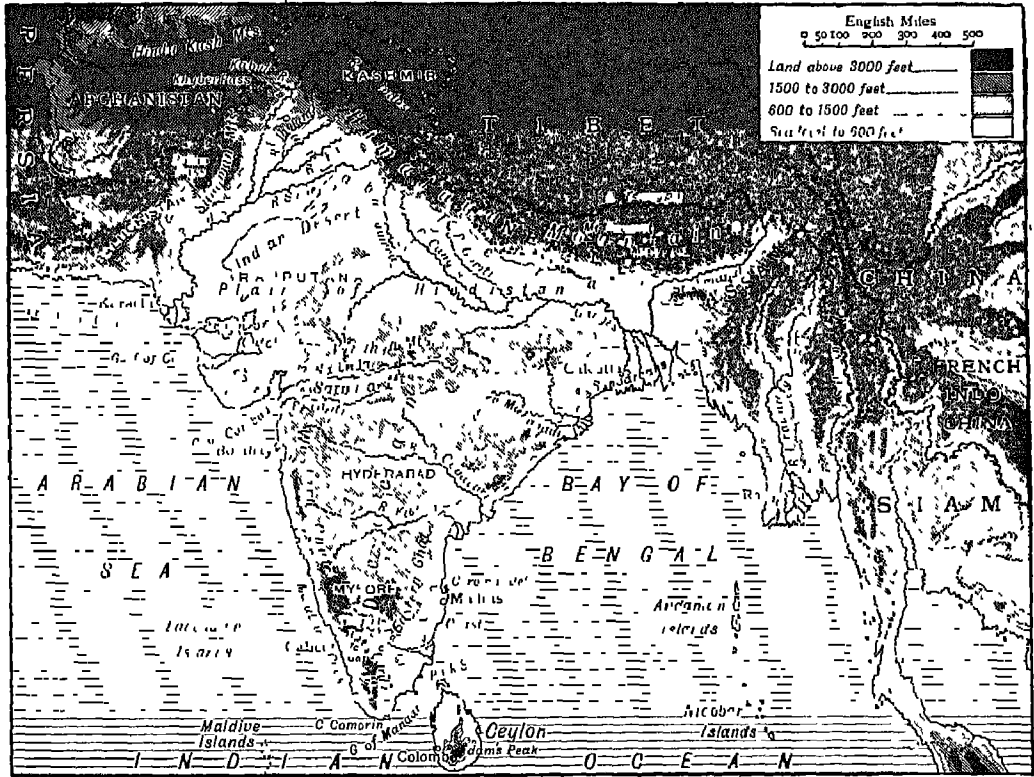
(Class Picture No 98 in the portfolio)

Palghat Gap, between the Nilgiris and Cardamon hills In the south of India is the pear-shaped island of Ceylon, a separate self-governing Dominion.

The countries bordering India are Burma, Iran, Afghanistan, Tibet, China, French Indo-China, and Siam The chief ports are Calcutta, Bombay, Madras, Karachi, Rangoon (Burma), Colombo (Ceylon) Karachi and Delhi are the capital cities of Pakistan and India respectively

Climate.—The Plain of Hindustan is in the temperate zone, and the Deccan in the tropics In such a vast country as India there are many varieties of climate. There are, generally speaking, three seasons in the Indo-Gangetic plain—the hot season from March to June, the rainy season from June to October, and the cool season from October to March The farther south one goes the less marked are the seasons, the extreme south being tropical. For several months together there is no rain, for several months together there is continual rain

India owes all its wealth to the monsoon rain For six months of the year, from April to September, the South-west Monsoon blows across the Indian Ocean The current which blows up the Arabian Sea is forced upwards by the Western Ghats, the winds are chilled and the moisture falls in torrents of rain on the coastlands. The main current passes up the valleys of the Narbada and Tapti, and meeting with the Vindhya and Satpura ranges lets fall immense quantities of rain on the northern parts of the Deccan

The current which blows up the Bay of Bengal brings rain to the Burma coast, but

INDIA—PHYSICAL

the main current blows straight up the Bay of Bengal to the foothills of the Himalayas.

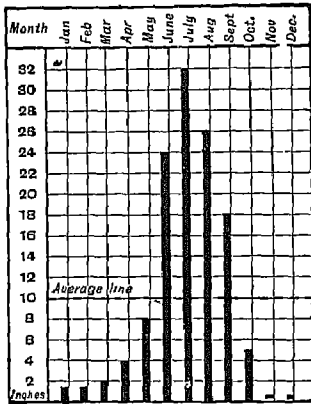
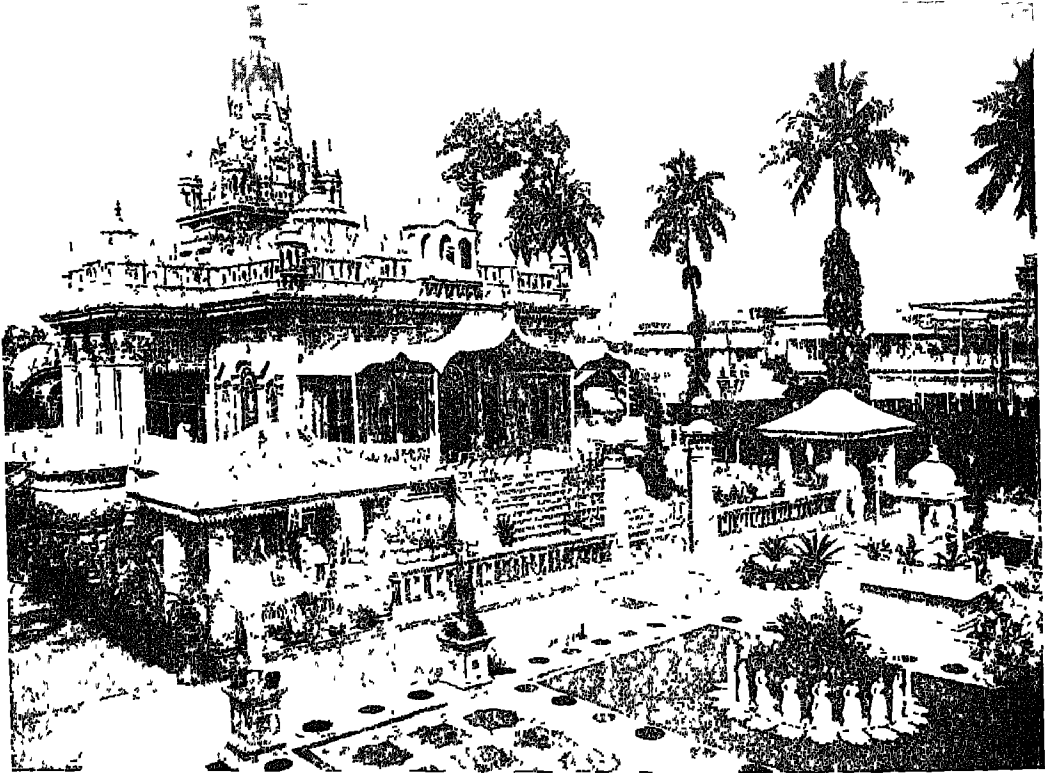
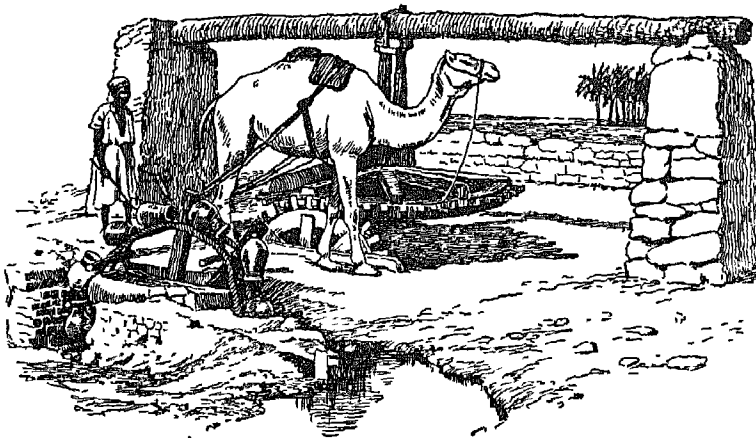



DIAGRAM SHOWING MONTHLY RAINFALL AT DARJEELING

(Note that the South west Monsoon blows from April to September)

Part of it blows up the Brahmaputra valley, giving great rain to Assam, and part blows westwards and waters the Ganges valley and the southern slopes of the Himalayas.

From October to December the North-east Monsoon blows from the interior This is really a dry wind, as it blows from the land, but it gathers sufficient moisture on its journey over the Bay of Bengal to descend in heavy rain on the regions about Madras—the Coromandel Coast—and the hills of Ceylon. The wettest part of India is the north-east, where rain falls all the year round The average rainfall of Darjeeling is 121 inches annually (see diagram). The low-lying parts of the Indus valley are little affected by the monsoon rains, and here is the Indian Desert The western parts of the Indo-Gangetic plain have a moderate rainfall; irrigation canals, tanks and storage

[*Photo* E N A

BADRI DAS TEMPLE OF THE JAINS, CALCUTTA

PERSIAN WATER WHEEL

wells are necessary for the cultivation of the crops The surface of the great plain of the Ganges is riddled with wells like a sieve, canals are more common in the Punjab, storage reservoirs are used in the impervious rock of the Deccan. There are various native methods of drawing water One of the most common is the primitive water lift like the *shadoof* of Egypt (see Class Picture No 4). In south Rajputana and in parts of the Punjab the Persian water wheel is used. One of these wheels will lift 150,000 gallons of water per day.

The diagram graphically illustrates the even temperature at Colombo on the coast of Ceylon, and the wide range of temperature at Simla, a hill station north of Delhi, the capital city of the Dominion of India The families of government officials at Delhi go to Simla during the hot season Darjeeling, on the Lower Himalayas, is the hill station for Calcutta; Poona a military station and hill station for Bombay; Bangalore in Mysore for Madras, and Ootacamund in the Nilgiris

DIAGRAM SHOWING MONTHLY TEMPERATURES AT COLOMBO AND SIMLA

(Note the *even* temperature at Colombo and the wide *range* of temperature at Simla)

Rivers.—The Ganges rises in the ice fields of Tibet, and is navigable by large vessels for over 1,000 miles in its course through the plain The river is a great commercial highway, but its chief importance is that it annually floods millions of acres of land, and leaves behind fertilising silt for the rice, jute and millet fields This wonderful soil reaches in places a depth of 500 feet, and not a stone is to be seen on it Millions of industrious Indians live on this flat, treeless plain.

The Indus leaves the Himalayas as a rushing torrent, but for 1,000 miles through the plain its speed is normal Both the monsoon rains and the glacier water which feed the river and its tributaries occur during the summer months, so that the Punjab is flooded during summer, but in winter and spring the rivers are low in their middle courses and useless for irrigation or navigation For this reason extensive irrigation canals have been constructed by the Government.

It must be remembered that the people of India depend entirely on their own home-grown food; they do not import their necessities as is done in Britain; hence, if

moisture fails, crops fail, and the people are quickly on the verge of starvation In this respect two of the great material benefits brought by the British rule of past years to India were the construction of irrigation works and the laying of 40,000 miles of railways by which food can be supplied to necessitous districts The most notable irrigation schemes are in connection with the great Sukkur Dam in northern Sind, the Cauvery-Mettur Dam in southern India and the Gang Canal The last-named leads from the river Sutlej and brings fertility to over 1,000 square miles of the all but barren Thar Desert.

The soil of the Deccan varies greatly. Much of the middle region is covered with a very porous soil formed from volcanic rocks There is not enough moisture for trees, but there are extensive grasslands. The black soil lands hold the water, and with rain form a sticky mud. On this soil cotton is extensively grown, especially in the valleys of the Narbada and Tapti The eastern edge of the Deccan is composed of hard non-porous rocks, off which the water runs freely. Here the rivers are dammed to trap the water, and thousands of shallow storage tanks have been made.

The Irrawaddy is the great river of Burma. It flows between densely forested mountain ridges and is navigable from its eastern mouth to Bhamo, a distance of 900 miles Steamers and native junks are here in great numbers, rafts of timber are floated down to the sawmills at Rangoon. Most of the Burmese live in the river valley and on the deltaic plains. On account of floods the houses are built on piles.

CHILDREN'S STORY

India and its peoples.—Find on the map of the world the great land of India, which is a part of the British Commonwealth This vast country is thirty-six times the size of England, and contains ten times as many people A steamer sailing from London to India by way of the Mediterranean and the Red Sea completes the journey in about eighteen days, from Australia, India is reached by steamers in thirty days. The country is shaped like a mighty triangle, with the island of Ceylon in the south. The point of this triangle lies near the equator, but its base is much farther north

There are over 400 million people in the great country. Some of them live in the north-west and in the north-east and call their land the Dominion of Pakistan. Others live in the rest of the country, which is named the Dominion of India Thus India is really only one part, but in geography we think of the whole country under that name.

There are many different races of people in this vast country of India, and most of those living in one part do not understand the languages spoken in other parts. India is such a rich country that from times long past people of other lands have wished to possess it. The north of India is guarded, however, by mighty ranges of mountains which have kept out many enemies. These mountains can be crossed only by lofty passes or "gateways" at the western and eastern ends of the mountain range, through these passes many invaders have entered India in the past

When the British went to India they did not enter by way of the mountain passes, but by the sea They first set up small trading stations on the east coast. The Portuguese and French also had trading stations, and in course of time the French and British fought one another for the mastery. The British won and after the country had been under their protection for many years it was, in 1947, divided into two Dominions and given back to the rule of the Indian people.

From the Class Picture of Men of India you may see how Indians look and dress. A man's clothes are easy, light and loose to suit the climate He is dark-skinned and slender, and wears a *pagri* or turban to protect his head from the hot sun The colour of his turban and the way in which it is folded denote the class to which he

belongs The turban of an Indian of high rank is made up of many folds of fine muslin so cleverly arranged that once done it is never unrolled, but an Indian peasant has only a strip of plain white cloth, which he can bind on his head very quickly. Many men wear round caps inside their turbans, or smaller pagris wound inside the others The tail of the turban is often allowed to hang down over the back to protect the spine from the rays of the sun

The mat makers live in a village near the mouth of the river Ganges where jute grows well The man on the right is spinning the fibres of this plant into thread in readiness for his friend who is weaving You can see that the mats are well made and in pretty colours and patterns Many are needed in India, for the poorer people use them in their homes instead of beds and furniture

The fruit merchant is holding up two large melons for sale He has some more on his tray, as well as delicious rosy red bananas, purple plums, speckled pomegranates, mangoes and other fine fruits He wears a large orange turban, brightly coloured waistcoat and striped shirt, his folded waist-cloth is loose, like a skirt, and he likes to have his shirt outside it for coolness His tray of fruit stands on a wide-mouthed cane basket He is a very busy man, for fruit is eaten freely in the hot country of India. He has no bags in which to put his fruit, customers have to bring their own, or carry away their goods in their hands or in the folds of their clothes The melon is a favourite fruit of the Indian On a hot summer's day a man may eat a dozen, cutting them into slices with his knife. The mango, too, is greatly prized by Indians. The tree grows thirty feet high and its glossy foliage gives pleasant shade from the sun The fruit is like a very large plum, and is sweet and refreshing to eat (See blackboard sketch on page 565)

The copper-smiths are town workers and are very busy and clever men. Those in the picture live in the fine city of Delhi, where there is a famous street lined with open workshops The men tap-tap away all day long with their hammers, making beautiful bowls, trays and drinking-vessels in copper and brass Some of the work in gold and silver of such men is wonderfully delicate and worth a great deal of money

The people of India are fond of animals and birds, and look on some of them as sacred The cow, especially, is a sacred animal to the Hindus, and if one should lie down to rest in the middle of a busy road, she would be allowed to stay there, and the people would move aside out of her way. In some temples are kept sacred bulls, which ramble about the towns like pet dogs When a bull fancies anything out of a shop he goes in and takes it, and the owner bows in front of him He will also go into a house and sniff about until he finds what he wants The householder thinks the bull's visit an honour and believes that it will bring a blessing on his house By rattling a little drum shaped like an hour glass, or by making music on a curious flute, men charm poisonous snakes and coil them round their necks and bodies Other men tame birds, and at the fairs is often seen a performing sparrow which has been taught to thread beads on a string Now and then a man may be seen with a row of peacocks sitting on a pole, and they do not try to fly away India is the native home of the peacock. A famous Mogul emperor once had a "Peacock Throne" fashioned like a peacock from gold, and covered all over with flashing diamonds, and red, green and blue jewels

Now turn to the picture of the Women of India The first part shows a most common sight in India It is of women returning home with water, carrying heavy pots of brass or of earthenware balanced on their heads

Water is always needed in hot India, but in millions of homes there are no handy taps as in our country So several times a day mothers must go to and from the nearest well or river. When the husbands are away at work they sometimes take the household washing with them and enjoy a pleasant chat as they scrub In the evening it is the

men's turn, the women go home with their pots to cook the family meal, while the men bathe, pouring the water over their heads and making sure that they will be clean before eating. The women in the picture are at a *ghat*, which is a kind of landing place by a river with steps leading down to it. Do you notice the graceful flowing robes they wear and also the pads on their heads to save a bad bruise from the heavy jars? The boy on the left is re-winding his pagri, which has become loose while playing.

The women on the right, winnowing rice, are separating the grain from the husks. What a long tiresome job it must be! Three-quarters of all the people of India are peasants and very poor. They cannot afford modern machines and so most plough their little fields and harvest their crops in the simplest way. As you know already, rice is the chief food of India. The people use it and the flour of other grain for making round, flat cakes. These cakes are called *chapatties* and are the daily bread of boys and girls all over the country. Rice is also served with sauces, pickles and curries, which contain a great deal of mustard and pepper. Indeed it comes into almost every kind of food they eat. The woman is winnowing the rice most gracefully; she swings up the basket smoothly, faces the breeze and tosses the rough grain into the wind. The chaff is blown away and the heavy grains fall to the ground and are swept into a neat heap. The other woman sweeps with her leafy branch in the same gentle way. Indian people are noted for the grace of their movements as they work; it helps to make hours of toil in the sun much less tiring.

What a difference there must be in the life of peasant people and in that of the family in the bottom picture! These people live in a city and the father is a well-paid business man. They have been educated in one or another of the fine schools and colleges and are able to enjoy the modern comforts of their cool and pleasant home. Mother's sewing-machine saves her a great deal of work; there are books and magazines on the table, a radio set in the background and the eldest daughter has learned to play the violin. One thing to notice is that while the men and girls wear European clothes the older women prefer the beautiful Indian robes called *saris*. The man on the right is a paid helper and is about to serve refreshments.

A true story.—For many, many years the millions of people in India were governed by a small number of British. The aim of the British was to rule the Indians justly and treat them fairly. From time to time the British had a good deal of fighting, especially on the borderlands of India. An interesting story is told of a Sir Charles Napier, a British general who took part in one of the native wars.

Accompanied by some of his officers, Napier was walking through a town in northern India, when he noticed a large crowd gathered round a man, who was waving an orange in one hand and a sword in the other and shouting loudly. He sent a servant to enquire who the man was and learned that he was a swordsman, who was boasting that if any man was brave enough to hold the orange steadily on his open hand, he would cut it in half without doing him any harm. He offered the orange to men in the crowd, but they shrugged their shoulders and turned away. They were not going to risk losing one of their hands.

In a moment Napier pushed his way through the crowds to the swordsman's side. His friends tried to hold him back, but he shook them off.

"Give the orange to me, I will hold it," he said to the swordsman, "and prove whether or not you are speaking the truth."

A murmur of admiration ran through the crowd. The swordsman looked a little frightened when he saw the famous British sahib standing in front of him, but Napier insisted on the man carrying out his boast. He stretched out his right arm and the orange was placed on the open palm. Then, amid a breathless silence, the swordsman took careful aim and whirled the glittering blade round his head. Napier stood like a rock,

and the sword fell. It cut the orange into two perfect halves and did not even scratch the bare hand beneath

"You are a clever fellow," said Sir Charles, quietly, handing the swordsman some coins, and throwing the pieces of orange to the ground. Then he rejoined his friends and went on his way amid the cheers of the crowd.

TEACHING HINTS

1. The pupil's part.—As the lesson proceeds, the pupils should be encouraged to take an active part in it by doing the following:—

(*a*) Tracing on their atlases or on the wall map the route of a steamer from London through the Suez Canal to Bombay

(*b*) Tracing in the same way the route of a steamer from Perth in Australia to Bombay

(*c*) Tracing the equator line and noting its distance from the north and south of India respectively

(*d*) Finding the Himalayan mountains and their "gateways"—the Khyber and Bolan passes in the west, and the Brahmaputra valley in the east

(*e*) Locating on the map Ceylon, Delhi, Karachi, Calcutta and Burma.

2. Robert Clive.—A short biography of Robert Clive will be found in Volume VI

3. The Persian wheel.—This consists of an endless chain of pots mounted on a double rope which runs over a large wooden wheel By a simple system of wooden gearing the wheel is made to turn. The motive power is supplied by oxen or camels.

4. Memory work.—(*a*) India is a vast country, thirty-six times the size of England. (*b*) It is made up of two Dominions, India and Pakistan (*c*) Steamers sail from London to India in eighteen days (*d*) Many different peoples live in India (*e*) An Indian peasant wears only a loincloth and a cotton turban (*f*) His wife carries water from the well in jars on her head (*g*) Rice is one of the chief foods of the people. (*h*) The homes of educated Indians are pleasant and up-to-date

5. Exercises.—(*a*) Why are turbans important in India? (*b*) Tell all you know about the mat makers (*c*) What fruits are sold in India? (*d*) How do the Indians show a love of animals and birds? (*e*) Where will many copper-smiths be seen at work? (*f*) What kinds of articles do they make? (*g*) How are many Indian homes supplied with water? (*h*) From where is it obtained? (*i*) What takes the place of bread in India? (*j*) How is the grain of rice separated from the husks by peasant people? (*k*) Describe a modern home in India.

VIII. TRIPS ABOUT INDIA

PICTURE REFERENCE

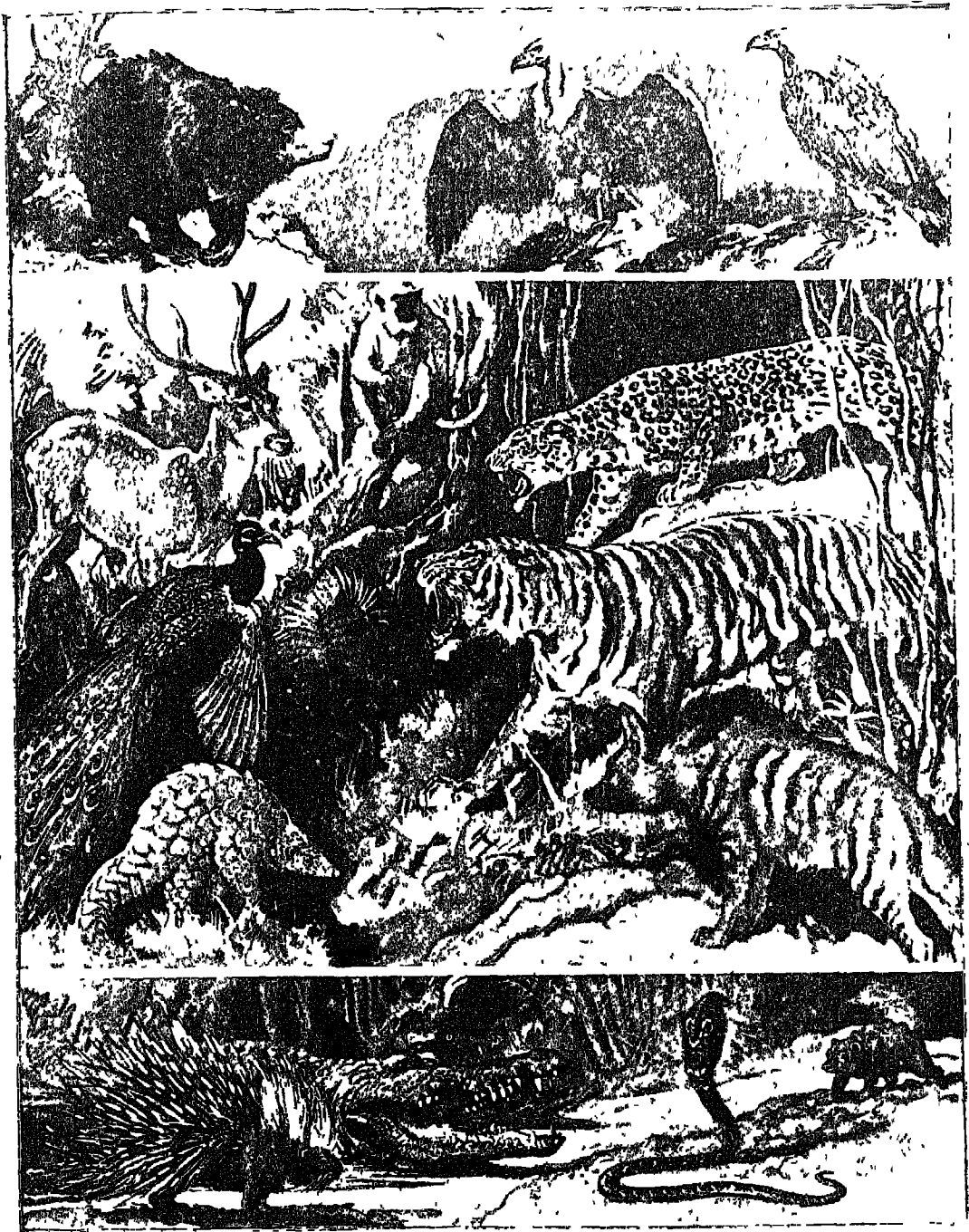
AN illustration of the Class Picture for this chapter, Wild Animals of the Indian Jungle, appears on the opposite page and is fully described in the Reference Book The tremendous variety existing in India with regard to climate and vegetation is displayed equally in the animal world The larger animals—elephant, tiger, leopard, hyaena, bison, deer—inhabit chiefly the areas of jungle at the foot of the Himalayas, in the Great Plain and in the eastern Deccan crocodiles infest river swamps, while the jackal, the general scavenger, is common to most districts Almost universal, too, are snakes, many kinds of which are venomous and, in spite of protection now afforded by medical treatment, are very dangerous

CHILDREN'S STORY

Bombay.—For four mornings after leaving Aden the traveller to India looks eagerly over the sea towards the east, hoping in vain for sight of land On the fifth morning he sees the gleam of a lighthouse, and then a long, low coastline. The liner enters a great bay, with fine buildings and groves of coconut palms overlooking it Slowly she makes her way among steamers, fishing boats and merchant ships, and drops anchor near the Ballard pier. Many little launches carry luggage and passengers quickly to the pier itself, on which there is a crowd of people of all nations. Porters, wearing round their arms brass badges showing numbers, swoop down on the luggage, and before long the traveller finds himself in a taxicab on the way to a fine hotel

Bombay is India's "front door," because it is the nearest large port to Europe The city is built on an island and has a splendid harbour. Travellers from overseas are glad to stay here for a day or two, in order to find out a little about the new, strange land they have entered They are astonished at the bright colours and at the mixture of peoples that they see. In the new part of the city there are tall buildings, and clean, wide streets down which electric tramcars and taxicabs run In the factories giant cotton mills roar as they manufacture cloth for the people's needs

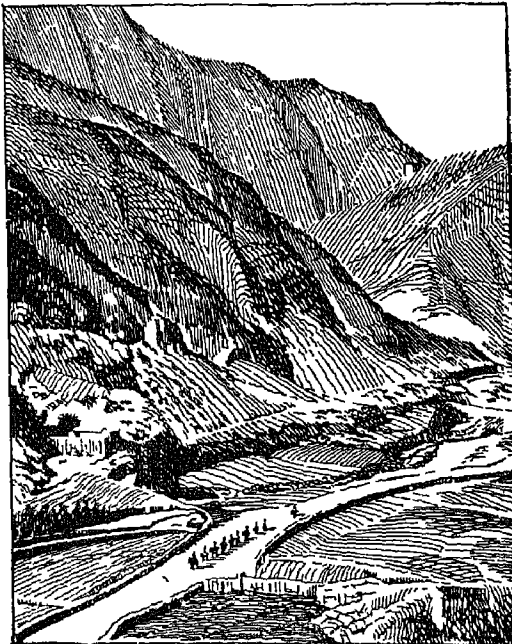
A few steps from one road to another bring the traveller into the native quarter, and he finds himself in the bazaar. Here the streets are crowded with tiny shops. The goods are spread on planks and packing cases outside the shops Everything is open to the view, and the shopkeeper squats in the midst with a fan in his hand to keep himself cool and to whisk away the flies Busy workmen sit and carry on their trades in sight of the passers-by. White, brown, black and yellow people jostle each other in the crowded roads The sun strikes on turbans of red, orange and green, on robes of blue and white, and on the brown bodies of porters carrying burdens A loud noise of strange tongues fills the air. Busy water carriers run about laying the dust by sprinkling water out of the goat skins slung over their shoulders (See blackboard sketch page 565.) They fill their skins at tanks or wells and carry them off to water the roads or fill the pots, jars and baths in people's houses Queer little carts drawn by a pair of tiny, mild-eyed, hump-backed oxen pass by Numbers of people squat by the wayside with their chins on their knees, waiting to be hired

Among the crowds are Indians, Arabs, Jews and Parsees The poorer Indians wear loincloths and their women have many

Wild Animals of the Indian Jungle

Top panel Sloth Bear, Griffon Vulture, Imperial Eagle
Middle panel Langur, Cheetal or Axis Deer, Peacock; Pangolin, Leopard, Tiger, Hyaena.
Bottom panel. Porcupine, Crocodile, Mongoose, Cobra.

(Class Picture No 99 in the portfolio)

bangles and ornaments, and yards of blue or red cotton cloth draped round them The Arab is a horse dealer and wears a long, white robe and hood bound with cords of camels' hair. Pearls from the waters of the Persian Gulf are sold in Bombay, and these are bought by Jews whose turbans are made of cloth covered with strange patterns. The Parsees are rich men, for they are bankers and money lenders. They wear on their heads very high hats with no brims, and their women are splendidly dressed To the Parsee the most sacred thing is fire, and the sun is his chief god. At sunset in Bombay scores of Parsees gather on the sea shore They sit on the sand, take off their hats and bow to the sun. Then they put on their hats again and read prayers aloud from sacred books

The Himalayas.—Journeying northwards from Bombay the traveller presently finds himself in a vast plain. He may travel 1,500 miles from Karachi in the west, to Calcutta in the east, and not pass through a single tunnel or see a hill anywhere near him For a great part of the journey, however, there will be mighty, snowclad mountain peaks far away on the northern skyline. These are the Himalaya mountains All down the ages they have guarded India from foes, and have fed with their snows the wide rivers of the plain There are few points at which they can be crossed. The chief "gateway" of the north-west is the Khyber Pass A few years ago this was a stony track between great overhanging cliffs Now it is a motor road and lorries and buses bump their way past lines of slowly padding camels Life is very hard along the wild rocky borderlands and men are quick to use their rifles when quarrels break out Villages are therefore like small fortresses, with the houses of mud and stone surrounded by strong walls. No-one, however, may disturb the peace of the Pass and traffic goes on its way in freedom and safety

KHYBER PASS

Kashmir.—To the north-east of the Khyber Pass lies beautiful Kashmir, or the "happy valley." It is a lofty plain, so high that its summer weather is only a little hotter than that of England In winter, snow lies on the ground for three months Early in March it disappears and the valley is green with grass and growing crops, and bright with flowers. All around are snow-clad mountains, and the plain is dotted with villages standing among wheat and rice fields, meadows and orchards of apple, pear and peach trees. On the mountain slopes goats with fine, soft hair are reared.

The capital is Srinagar, which stands on, or rather *in*, the river Jhelum, for all its streets are waterways. The houses and temples of Srinagar rise up from the river's edge, and their roofs are overgrown with plants and flowers. Wooden bridges span the stream The city is very old, and on one of its hills, called the "Throne of Solomon," there has been a temple since 2654 B.C. Beautiful mohair shawls were once

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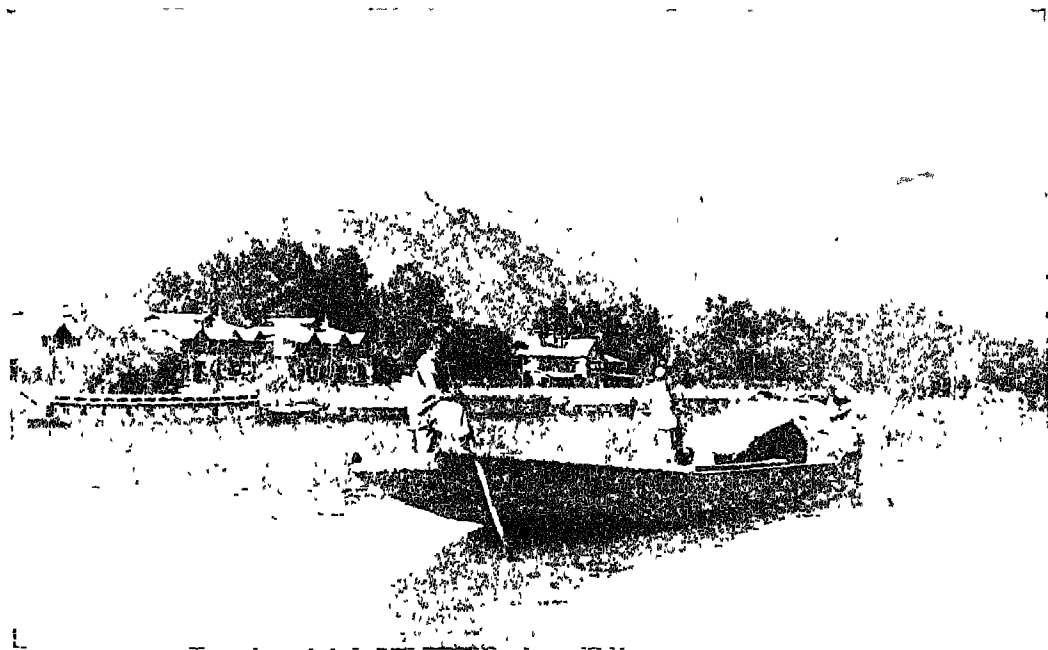
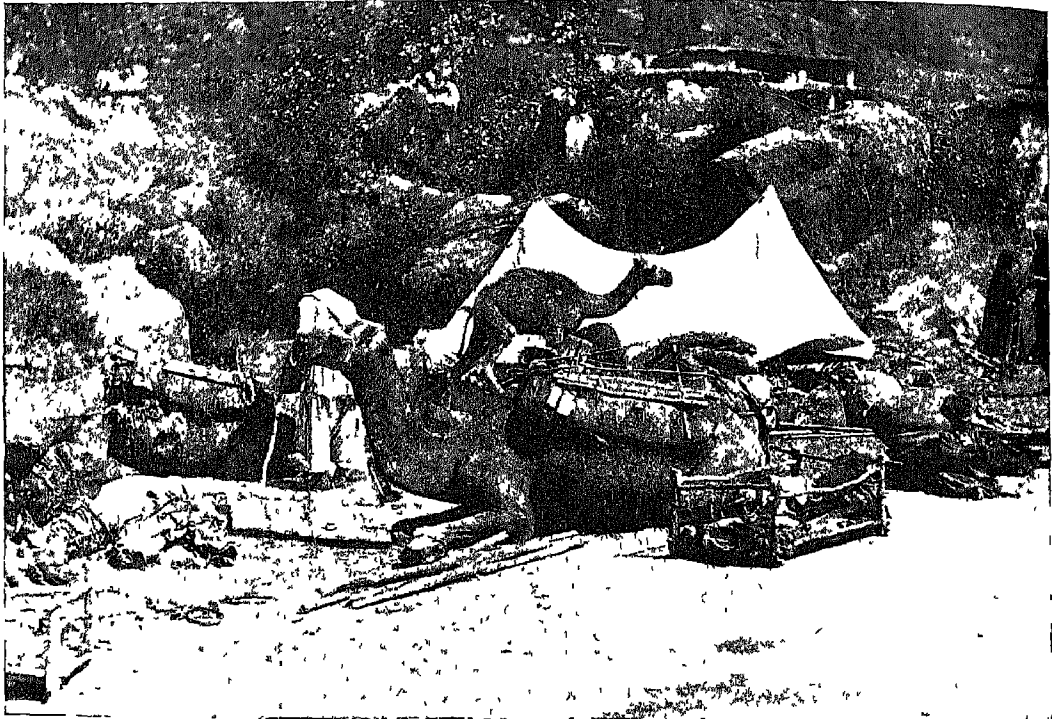
MOUNTAIN GOATS—LIDAR VALLEY

[Reproduced by courtesy of Indian Railways Bureau

ON THE JHELUM AT SRINAGAR

In the background is "the Temple of Solomon" on the hill There has been a Temple on this spot since 2654 B C

[Reproduced by courtesy of Indian Railways Bureau

A WAYSIDE ENCAMPMENT, JAMMU-SRINAGAR ROAD

made at Srinagar, but the people now mostly weave carpets. From the plain below to Srinagar a road has been made along which soldiers can advance quickly when needed to fight against troublesome hill tribes. Along this road families may be seen travelling on camels. A saddle is fitted over each camel's hump, and bedding is laid on top of the saddle or tied behind it. Sometimes camels are harnessed to wagons. Families carry tents and food with them for their journey and encamp by the roadside when night falls Good camels will travel eighty miles in a day.

Simla.—Many miles to the south-east of Srinagar is Simla, a hill station of the Himalayas Here the government officials in Delhi spend the hot summer months of the year The town is 7,000 feet above the burning plain, and is like a gay Swiss city, overshadowed by forests of fir and pine, with snowy hills standing on the skyline Simla in summer gives a wonderful relief from the burning plain with its withered grass and trees and dust-laden winds blowing from the western desert.

Mt. Everest.—More than five hundred miles eastwards of Simla travellers come to the grandest of all the Himalayan ranges, from which rises Mt. Everest, the highest mountain in the world No one has ever yet stood on the summit of Everest. A traveller climbing the slopes of this great mountain passes through all the different regions of plant life He begins his journey among thick jungle, where creepers bind tree to tree, and palms and bamboos flourish. He goes on through lands of orange and fig trees until the air begins to feel cooler. Now he finds the trees that grow in England

[Reproduced by courtesy of the High Commissioner for India

WHEAT MARKET

—oaks, chestnuts and willows, with brambles and wild strawberries growing beneath them Streams trickle over the sides of the cliffs and wild flowers and butterflies make the mountain gay On goes the traveller, and now the land becomes grassy Pines and firs are seen. Up he climbs and leaves the forest behind At last he stands among open pastures, and beyond them lie snowfields and sheets of ice into which few dare venture

Darjeeling.—South-east of Mt Everest is the town of Darjeeling, another hill station like Simla. To it runs a wonderful mountain railway which crawls and curves and climbs up the steep Himalayas past dense hot forest land called the Terai, and lovely tea gardens In the bazaar at Darjeeling are seen men from the distant land of Tibet on the other side of the Himalayas

The Plain of Hindustan.—South of the Himalayas is the great plain of Hindustan, whose endless crops of wheat, rice, millet, maize, sugar and jute are India's riches. Into this plain flow a thousand streams, great and small, from the mountains standing on its borders All these streams are gathered sooner or later into the broad waters of the river Ganges which winds its way through the middle of the vast plain.

Everywhere this sunny plain is covered with crops In the west the traveller sees fields of wheat and barley like those grown in England. As he journeys eastward he notices fields full of millet and cotton, and still farther east there are countless paddy fields The people live amongst their fields in huts made of mud and thatched with sticks and grass Groves of palm and bamboo grow near villages. Herds of buffalo feed on the village pastures, and clumsy oxcarts creak along the roads

Some of the most famous cities of India stand in the Ganges basin On a tributary, the Jumna, is Delhi, the capital of India The old city of Delhi contains a splendid palace built by a Mogul emperor, and many beautiful temples New Delhi, a short distance away, has great government buildings in it, and broad, straight roads lined with trees There is a fine arch built in memory of the men in the Indian army who were killed during the

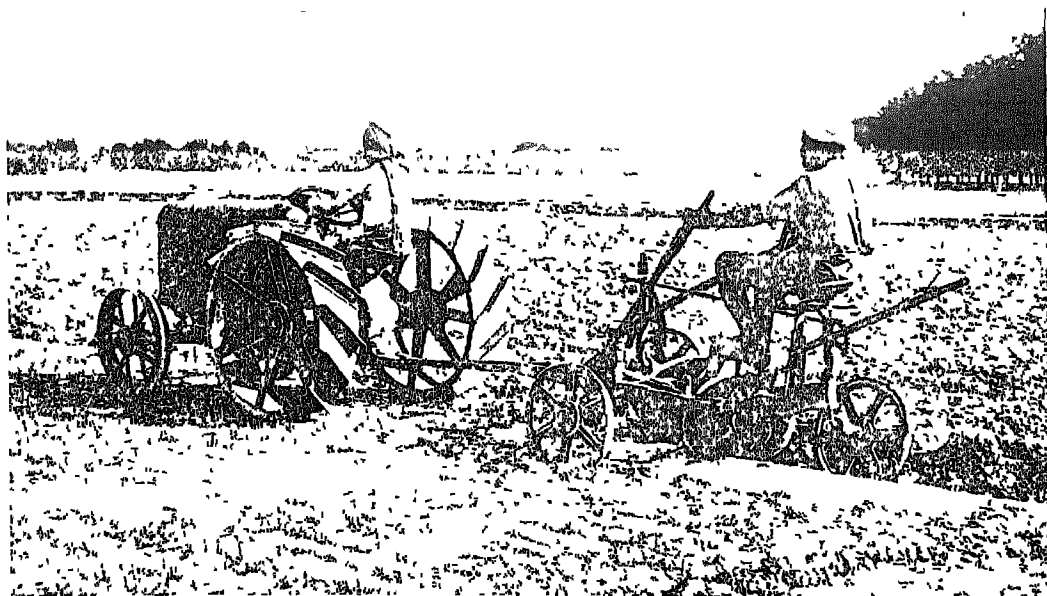
[Reproduced by courtesy of India House

LEVELLING LAND WITH PLOUGH AND SCRAPER

First World War Farther down the Jumna stands Agra, the home of the beautiful Taj Mahal illustrated on page 566 Benares, a holy city, is on the Ganges itself, and Calcutta, the great port at its mouth, is the largest city in India (There is an illustration of Benares on page 582.)

The Punjab.—The western part of the plain of Hindustan is watered by the river Indus and its five tributaries and is called the Punjab, the "Land of the Five Rivers" Like the Ganges, the Indus is fed by the snowfields of the Himalayas, and brings down rich soil and moisture to a thirsty land. Its water is spread out into slow-moving canals which turn desert into grain land and form waterways, up and down which boats laden with grass, grain and wood are towed from town to town Karachi is the port and capital of Pakistan.

Little rain ever falls in the Punjab. The land around Lahore, now full of smiling villages, was once a wilderness A famous people of the Punjab are called Sikhs. They have to endure cold winters and hot summers, and are fine, strong men. Their religion does not allow them to shave or cut their hair, so they have long beards, and coils of hair hidden under their turbans On the right wrist they wear a steel bangle to give them manly strength and most have the word *Singh* in their names, meaning lion-hearted. The Sikhs are clever with their hands and many are motor engineers in Delhi, Calcutta and Bombay Once they ruled the Punjab but now the land is divided between Pakistan and India.

The Monsoons.—India has three seasons—the hot, the rainy and the cool. The hot season begins in February, and the weather grows hotter and hotter as the sun's rays

PLOUGHING BY MOTOR TRACTOR [*Reproduced by courtesy of India House*

shine more directly overhead At length the land becomes so hot that the air rises over it, and a cooler wind is drawn in from the Indian Ocean This wet wind is called the south-west monsoon, and it brings rain to the land from June to October. For months before its coming the skies are cloudless The land is parched, the leaves of the trees are brown and dry; every living thing is limp and panting Then a row of dark clouds appears on the south-west skyline, the sky darkens, large drops of rain fall and turn to vapour on the hot ground In a few minutes the rain pours down in torrents, and all life becomes fresh and joyful again The greater part of India depends on this monsoon for the success of the harvest, and should it fail to come many people would die of starvation.

The rain does not fall equally all over India Wherever there are mountains, the wind in trying to pass them is forced upwards and cooled. Then it sheds rain all around Where the land is low and flat, however, the monsoon sometimes blows over it without dropping any rain. In the Punjab the villages have flat, mud roofs, the rainfall is slight, and wheat and barley are grown in the cool season; great sandstorms blow up from the Thar desert and bury everything around in deep carpets of dust Eastwards from Delhi the rainfall gradually grows heavier, until around Calcutta the ground is hidden beneath hot, wet forest, and villages nestle in banana groves No wheat is seen now, but field after field of paddy standing out of flooded ground The village huts have strongly thatched, sloping roofs which will stand downpours that would wash Punjab houses away Instead of the dry air of the north-east there is the damp heat of a hothouse.

By the end of October India is turned away from the sun instead of towards it,

and the great plain of India has grown cooler than the warm sea washing its coasts. The monsoon therefore changes, and the cool season sets in. Now the wind blows from the land to the sea, in a north-easterly direction, and is a dry wind, excepting in the far south, where it crosses the Bay of Bengal to south-east India and Ceylon. The cool season lasts from November to January. It is never cold in Calcutta, but the cold of a Punjab night is surprising In January and February shallow pools out of doors freeze over every night in the Punjab, and white men gather round blazing wood fires and talk of Christmas in England Travellers carry their bedding with them, and in winter they need rugs and wraps. A peasant has a thick cotton sheet which he spreads on the ground. He lies on this and covers himself with a cotton quilt stuffed with cotton wool When travelling he often uses his quilt as a coat to shield his shivering body from the cutting wind.

The Deccan.—The south of India is shaped like a great triangle A range of high mountains called the Western Ghats runs down the west coast, and this district is very wet in the rainy season, as it catches the full force of the south-west monsoon. Bombay is a wet place and has great paddy fields round it A railway crosses southern India from Bombay to Madras, and passengers find that after leaving Bombay the train climbs high up to the top of the Ghats and then goes on across a flat tableland called the Deccan. Rain on the Deccan is never heavy, because the winds lose the greater part of their moisture on the Ghats. The peasants cannot therefore grow rice, which needs flooded fields, so millet and cotton are the chief crops. Hundreds of oxen labour in the fields and draw loaded wagons along the roads Wherever there is enough rainfall, forests spring up from the rich, dark soil, and valuable teak trees grow in these forests.

The train from Bombay travels across the Deccan for a day and a night and finally reaches the other edge of the tableland which is called the Eastern Ghats. Then it runs down towards the sea and stops at Madras Three hundred years ago English merchants set up a trading station here, and the old fort built by them is still standing In the province of Madras the towns are famous for beautiful silk goods and articles of brass, silver and gold, while along the coast crops of coconuts, sugar-cane, rice and ground-nuts are grown Madras itself has a great trade, large leather factories and mills for rice and cotton The people of the city are different from those of the Ganges valley They speak another tongue and are shorter and darker. In the richer part of Madras are fine mansions standing in beautiful grounds The poorer quarter swarms with people who live in small houses crowded along narrow streets.

Mysore.—To the south of Madras lies a country scattered all over with beautiful temples. The people are deeply religious and the women seem to be even more fond of silver jewellery here than elsewhere In Mysore they wear closely fitting bodices, and blue or red robes called *saris* draped about their bodies and brought up over the shoulders On their foreheads are the marks of their class The hill country in the west of Mysore gradually gives place to valleys and open plains which are watered by many rivers, the chief being the Cauvery. These streams are banked up on the hillsides to form huge lakes or tanks from which water is carried in channels over the land. At the waterside is often built a *ghat*, or flight of wide stone steps running down to the river. Women and girls go in numbers to the ghat to fill their brass or earthen pots with the precious water Mysore is one of the most thriving provinces in India. It was ruled by a rajah before the country was divided into two Dominions and had long been noted for its good government carried out on the British plan In the province are rich gold mines and others of a metal called manganese, used in

[*Reproduced by courtesy of India House*

MYSORE GIRLS RETURNING FROM THE GHAT, MYSORE

making steel The people cultivate fine plantations of coffee, rice and millet and keep sheep on the highlands In the towns beautiful silk saris are manufactured

TEACHING HINTS

1. Map reading.—Before taking this lesson the teacher should let the pupils spend a few minutes looking at the map of India They might follow the curve of the Himalayas and note the deep brown colouring which signifies their immense height Then they should look at the Plain of Hindustan stretching from the Indus to the Ganges This is probably coloured green—for fertile lowland—excepting where the Thar desert is left a pale yellow Finally the pupils should examine the Deccan, coloured a light brown and therefore high. The Western and Eastern Ghats stand out darker upon it, and rivers cut across it Questions and general conversation about the map should be encouraged. This will make the pupils interested and anxious to learn more of the country.

2. A favourite story.—The story of the Parsee and the Rhinoceros might be read to the class afterwards (*Just So Stories*, by Rudyard Kipling)

3. Population of India.—The very great size and large population of India need special emphasis. This can be done by means of diagrams India has 400 million people in 1,576,000 square miles. Find the total area and population of Canada, Australia and New Zealand The comparison will be most striking

	Area	*Population*
Australia ..	2,974,581	8 million
New Zealand	103,862	2 million
Canada ..	3,684,723	12 million
	6,763,166	22 million

4. The Suez route.—The world's great highway passes through the Mediterranean, Suez Canal and Red Sea Show that throughout the whole of its course branches are passing into this highway from productive lands Contrast this route with the other great routes where lateral branches are few in number. The route is of value to all lands except South America and the western side of North America. Point out the development of important centres at narrow straits or points of convergence of branch routes, e g Gibraltar, Malta, Port Said, Aden, Colombo Refer to the great variety of material carried along the route.

5. The Great Plain.—Refer to the concentration of the people on the low river plains One third of the people live on the plain of the Ganges The plain of the Indus supports comparatively few people because of its dryness. The people live mainly near the rivers which have a good rainfall, and near the wet coasts, the reason being that those are the areas where the people can produce their food and the material for export. The people are peasant farmers and live in villages.

6. Climate.—It is of importance that the chief characteristics of the monsoon type of climate should be clearly understood.

(*a*) In India there is no winter season. In the plain of the Ganges the cool season is, on the whole, as warm as the English summer

(*b*) One part of the year is very hot

(*c*) Nearly all the rain comes in the hot part of the year

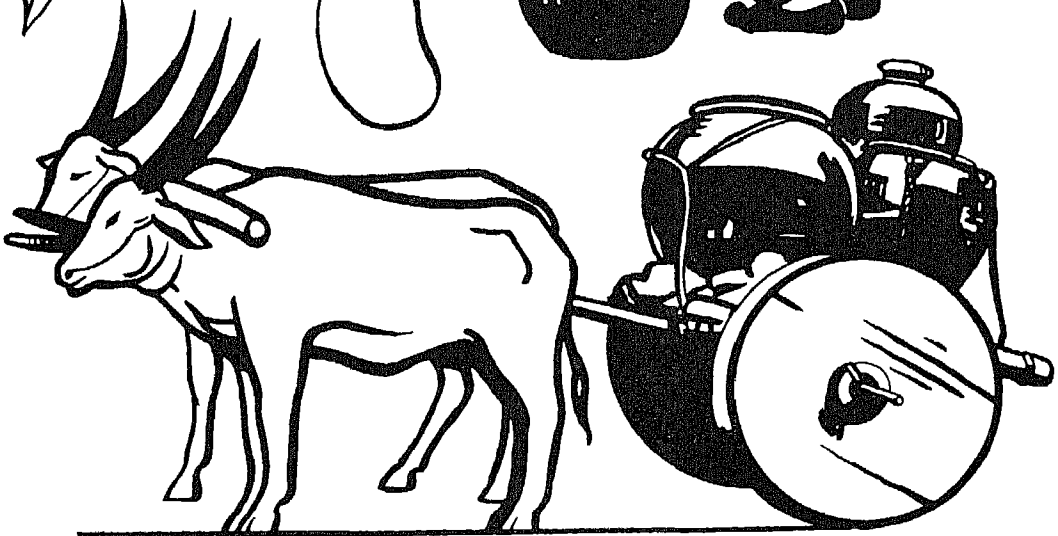
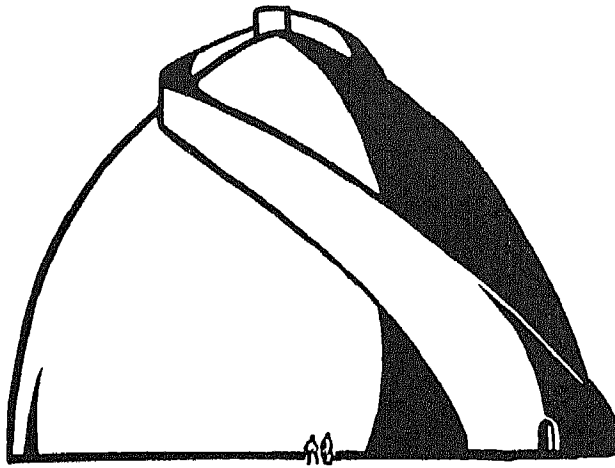
(*d*) The rain is of the relief type and is brought by the south-west monsoon.

(*e*) There is a complete reversal of the wind direction; this causes the dry season.

(*f*) The change of wind is caused by the change of temperature over the great plain of the north. The change of temperature over the sea is slight.

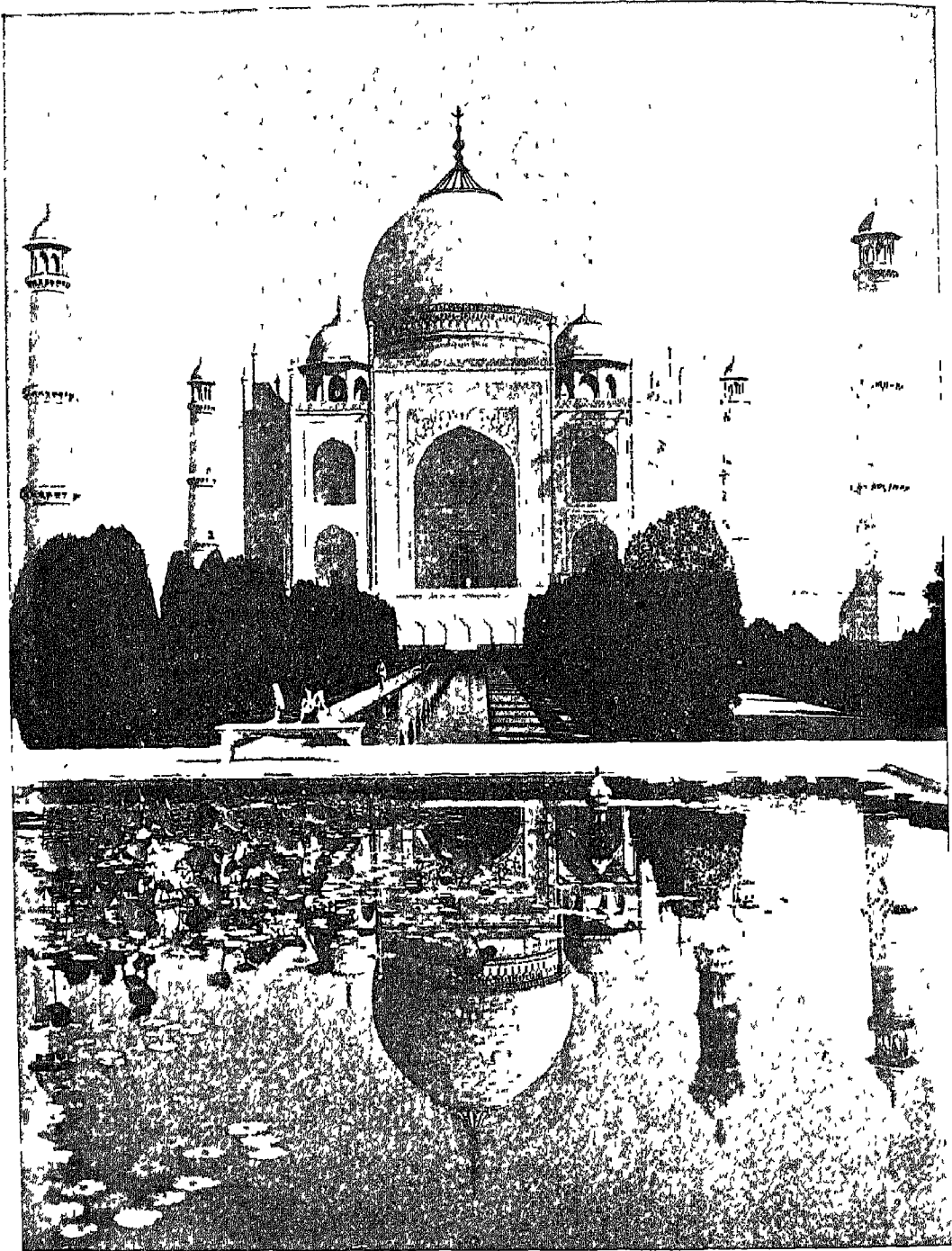
The monsoon type of climate necessitates irrigation during the dry season, and then agriculture can be practised during the whole year Crops suitable to temperate climes can be raised during the cool season. Monsoon products are of great variety and great yield The wet weather crops are mainly grown for home consumption—millet, rice, maize, cotton and sesame (oil-seed); the winter crops are for sale—wheat, barley, chick-peas, sugar, tobacco, hemp and indigo

7. Memory work.—(*a*) Bombay is the second port in India, and manufactures cotton goods (*b*) The snows of the Himalayas feed the Ganges and the Indus. (*c*) The plain of Hindustan is the richest part of India Crops of wheat, cotton and millet are grown in the drier districts, and paddy in the wet parts (*d*) There are tea plantations on the hills near Darjeeling (*e*) The valley of Kashmir is not much warmer than England Carpets are made at Srinagar. (*f*) The southern part of India is a great tableland called the Deccan (*g*) The south-west monsoon brings heavy summer rain to many parts.

SKETCHES FOR THE BLACKBOARD

A great Granary built at Bankipore, 1780, to guard against Famine
The Stairway leads to the Top and the Grain was
taken out at the Bottom

Fruit of the Mango

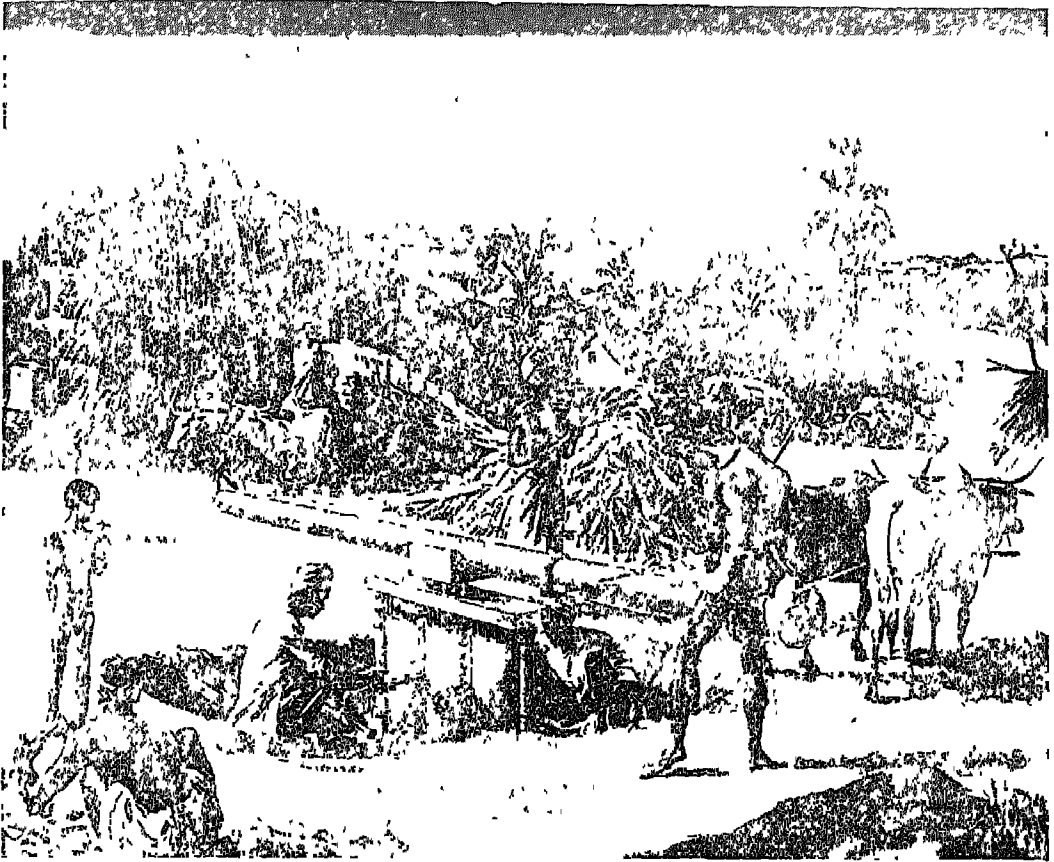
Native Water Carrier
with Goatskin

Bullock Cart with Jars of
Water

[*Reproduced by the courtesy of Indian Railways Bureau*

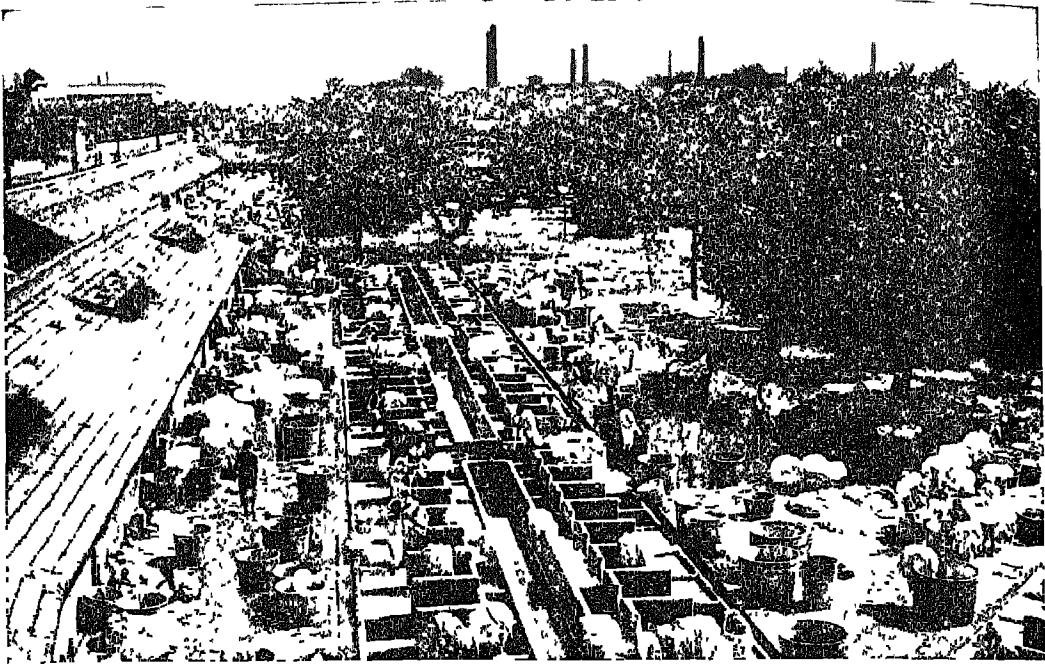
THE TAJ MAHAL

(See description on page 589)

IX. INDIA—INDUSTRIES

PICTURE REFERENCE

A VILLAGE SUGAR-MILL IN INDIA

(Class Picture No 100 in the portfolio)

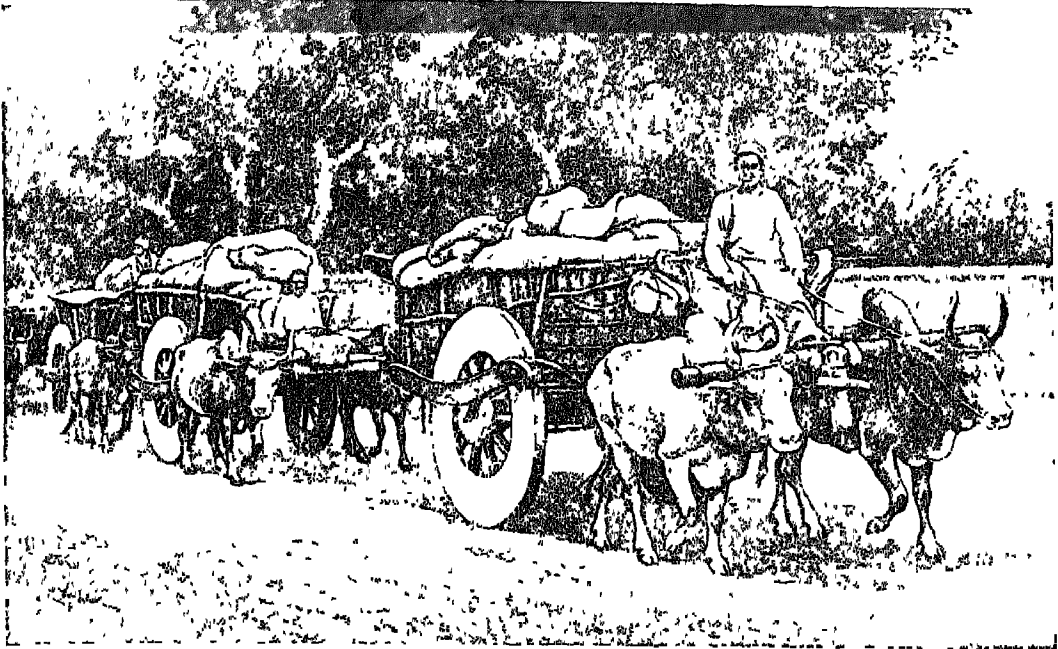
THE Class Picture illustrated above (No 100 in the portfolio) is of a Village Sugar-Mill The scene is an excellent example of the peace and content of the average Indian village, where modern innovations have made little impression, where life is unhurried and where work is measured by the tradition of centuries. In the sun-drenched courtyard the cane is crushed piecemeal, rollers turning as the slow-moving oxen swing the heavy pole. A train of creaking ox-wagons brings up more cane from a plantation on the level plain, close at hand is a thatched shed supported by bamboo posts, where the syrup is boiled and crystallised into sugar The oxen are of the humped species common in the East, their fatty humps acting as reserves of nourishment in times of scarcity. Sugar-cane is a cash crop of the peasant and in the

[Photo E N A.

DHOBI GHAT AT BOMBAY

markets will be seen huge blocks of *gur* or unrefined sugar, and of *jagree*, like solid crumbly treacle It should be noted that in recent years both the culture and the manufacture of sugar have greatly improved in the more advanced areas. Instructors are sent to villages from agricultural stations to coach the peasants in new methods, and already India, instead of being an importer of sugar, is now self-supporting

INTRODUCTION

India is pre-eminently an agricultural country. It is estimated that a little more than 70 per cent of the whole population is directly supported by agriculture, including forestry and the raising of livestock The prosperity of the 400 million inhabitants of the country depends upon the crops which can be cultivated on the 390 million acres of fertile land in India. Numerous varieties of crops essential for food, fodder, industrial needs and luxuries are produced in colossal quantities. Food crops cover nearly 82 per cent of the cultivated land and include such important things as rice, tea, wheat, sugar, millet, maize, fruits and vegetables. Large quantities of cotton, jute, hemp, rubber, oil seeds and indigo are produced to supply raw material to factories, and among the other important products of the country are tobacco, spices and teak.

Notwithstanding the great demands of a huge population upon many of the materials grown, there is a large export trade in each product mentioned above. Obviously, therefore, India must be a country where conditions are favourable to agriculture. The temperature of the deep, rich, alluvial soil of the northern plain is warm throughout the whole year, and rainfall is greatest during the hottest months Tropical plants are grown during the hot periods of the year In the dry, cooler months temperate crops are produced with the aid of irrigation.

BULLOCK TRAIN IN INDIA

There is thus a complete year of cultivation and a succession of harvests of various kinds. Similarly, in the Deccan, cultivation with the aid of irrigation is possible throughout the year. Production, too, is cheap, for India has a large population of peasants who live in a simple way for small wages

Tea.—Tea became known to Europe through the medium of the Dutch East India Company, and was introduced into England from Holland in the early part of the seventeenth century. English people, therefore, have been drinking tea as a beverage for a little more than 250 years. At the beginning of the eighteenth century the amount imported was about 100,000 lb. annually, but to-day the amount imported in a year from India alone exceeds in value more than £20,000,000

Although the plant is indigenous to Assam, its cultivation in India did not begin until 1834, when an attempt was made to compete with China, hitherto the only source of supply It was not, however, until 1880 that the industry became well established In recent years the area under cultivation has considerably increased, and in the last twenty-five years the area under the tea crop has more than doubled, and the production has trebled India is now the second tea-producing country in the world Large numbers of tea plantations are situated in Assam and the adjacent areas of northern Bengal. Others are found mainly in the southern extremity of India. There are altogether nearly 4,500 tea plantations in the country and more than a million people are engaged in the tea industry

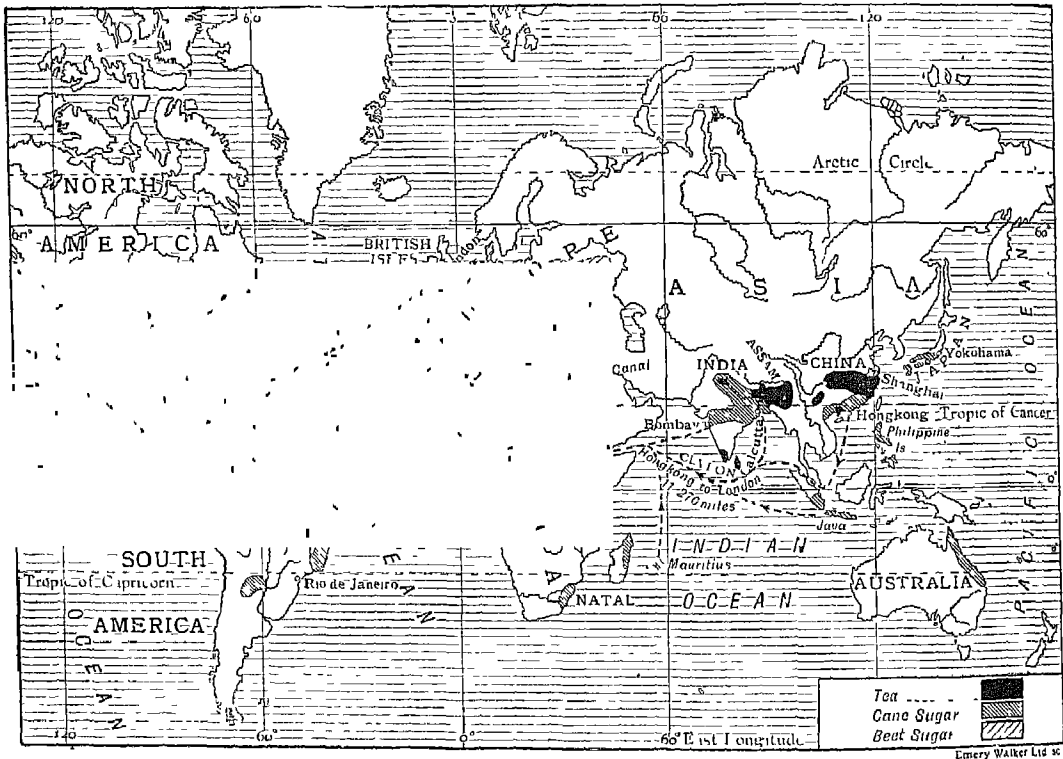
The tea of everyday use is obtained by drying the leaves of the fairly small tea shrub. This is propagated from seed sown in nurseries in November and December, the young plants being planted out at the end of from six to twelve months, usually at the rate of 2,000 to the acre. Pruning

takes place every year, and the first crop is obtained the second year after the first pruning. The crop gathered increases for a time with the age of the plant, and ultimately becomes 500 lb per acre In Assam the leaves are picked sixteen times during the year, but the number of pickings during the season is even greater in Ceylon

The first process in preparing tea for the market is to spread out the leaves to wither until they are flaccid. The leaves are then rolled and spread out in a darkened room in layers from two to six inches thick for from two to six hours. They are then dried as quickly as possible, after which they are graded and packed Before packing each grade is refined at a temperature of from 180° to 200° F and is packed while it is still warm

Only the topmost leaves on each shoot are used for the best tea The finer the plucking the better is the quality obtained. An abundance of skilled labour is required for picking the leaves, but in India the subsequent processes are all done by up-to-date machinery at the plantations.

It should be noticed that up to a certain point tea production is a peasant industry in India, but that finally it becomes associated with modern machinery As a contrast, it is interesting to notice that in China it is mostly a peasant industry. In that country tea is usually cultivated in small patches round the homesteads The family pick the leaves and give them their preliminary drying in the sun As they begin to curl up and darken they are made into balls, and so soon as the leaves have been given a sufficient twist, the balls are broken up and placed in cotton bags and taken to the nearest market for sale

The conditions necessary for successful cultivation should be noticed The tea

The World's chief Tea and Sugar Lands

[Reproduced by courtesy of Tea Planters' Association

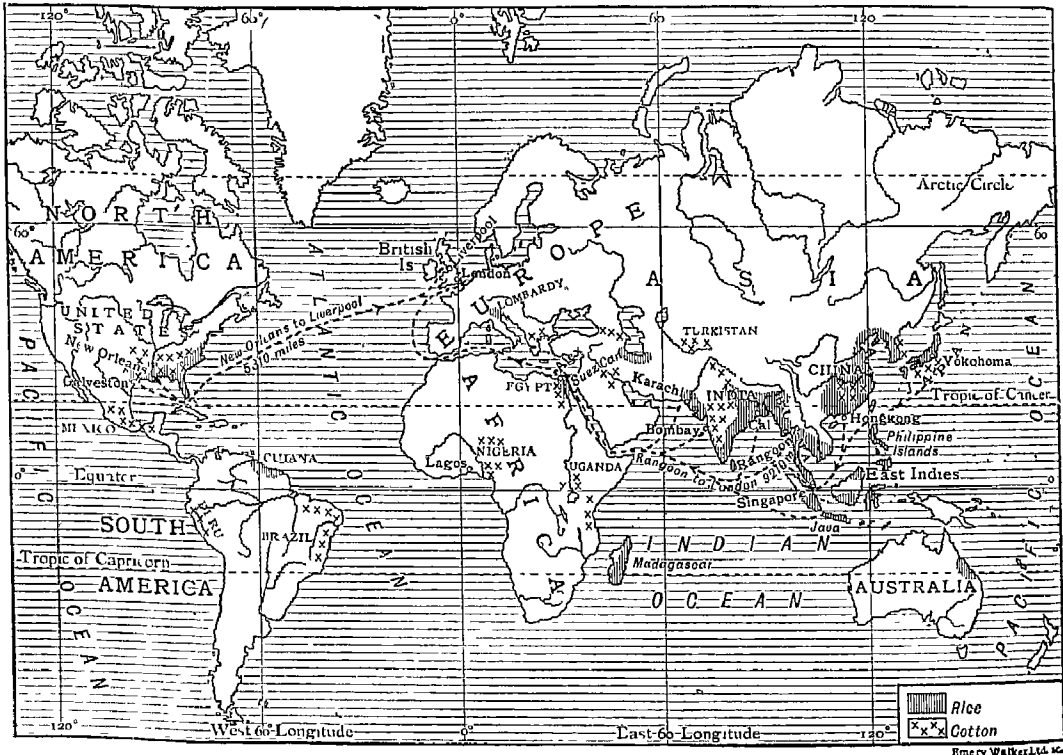
THE ASSISTANT MANAGER EXPLAINING THE PLUCKING SYSTEM TO SONTHAL WOMEN—UPPER ASSAM

shrub requires a deep, fertile, well-drained soil, and it flourishes on the lower slopes of the mountains and hills of many parts of monsoon Asia. The plant is very hardy, but it must have a long, warm and moist growing season.

THE WORLD'S ANNUAL PRODUCTION OF TEA IN MILLIONS OF LBS

The bulk of the tea produced in India is exported to foreign countries and the largest buyer is the United Kingdom, which takes about 87 per cent of India's total exports. Ceylon teas are well known in all parts of the world. They are grown in the hilly region near Kandy Ceylon ranks next to India in exporting tea.

The Dutch, Australians, New Zealanders and British are large tea drinkers, but in India the consumption, as compared with the United Kingdom, is only about $\frac{1}{200}$ per head of the population.

Rice.—Rice is the staple food of the densely peopled river plains of south-eastern

THE WORLD'S CHIEF RICE AND COTTON LANDS

RICE CULTIVATION—PREPARING SOIL FOR PLOUGHING

Asia, and is the mainstay of the people of India and of the Orient generally. There are many varieties which differ in the colour, size and shape of the grain, in the length of the stalks, and in the conditions necessary for successful cultivation. There are, however, two main varieties of rice—the upland and the lowland The former variety can be grown on hill slopes where the conditions are fairly dry, but the amount produced in India is small The lowland variety, which is the rice of commerce and the food of millions of Indians, requires level land which can at periods carry an excess of water This variety is grown mainly in the valley of the Ganges and on the coastal plains of the Deccan peninsula In Burma, large quantities are grown in the fertile valley of the Irrawaddy; while in Ceylon, rice is cultivated on the wet coastal plain of the south-west of the island Rice occupies almost 35 per cent of the total cultivated area in India. The Indian production is more than thirty million tons a year, this is about one-third of the production of the world. (In Eastern lands the word *rice* is rarely used Rice fields are referred to as *paddy* fields)

Swamp rice requires flat fields through which water cannot quickly drain away. An impervious soil beneath the surface is necessary in order to prevent rapid drainage. The first step in cultivation is to prepare a level surface unless it is already in that condition. Each field is then provided with embankments round its sides in order that it can be transformed into a flooded region in the early stages of the growth of the plants After the seed is sown the ground is flooded for nearly a month. As soon as the plants are large enough to handle they are transplanted, and the workers paddle in the water over the rice field Draining and re-flooding are necessary at intervals during the growing period, the amount of water used being less and less on each successive occasion Finally the water is drained away for the seed to ripen, and the crop is gathered by the use of sickles An immense amount of skilled labour is necessary for all this toilsome work, but it must be remembered that the swamp rice areas are the most densely peopled parts of the world. It is evident that an abundant supply of water is needed to produce the rice The crops of India and Burma are restricted to those river valleys where the mean annual rainfall is above forty inches. The great river deltas and alluvial plains of the Ganges and Irrawaddy are ideal rice lands, for they receive an abundant supply of rain from the south-west monsoon The growing season is comparatively short and the harvest is prolific In the most favoured areas three harvests are possible in the hot

SOWING JUTE

wet part of the year, and it is a poor rice area which does not produce two crops. The first demand on the crop is for the food supply of the inhabitants, and it is only the surplus that is exported There is a large quantity for export from the Ganges and Irrawaddy valleys, but in Ceylon, although there is a large production, an import is necessary to provide enough food for the people of the island.

Rice passes through several processes before it is transformed from paddy to the polished rice of consumption. It must be husked, skinned and polished On the small rice fields these operations are performed by hand or by small hand-worked machinery, but in the large rice-growing areas mills equipped with modern machinery are established. For fuel these mills use the paddy husks. Although mills with machines often deal with the crop which has been harvested, it must be remembered that the field work is still carried on in a primitive fashion Small wooden ploughs drawn by oxen or water buffaloes work in the paddy fields, and reaping is still done by hand (See Class Picture No 67)

India with Burma produces most of the world's rice, but the amount consumed as food is so great that only about 7 per cent of the crop is exported

The value of the export of rice is about £30,000,000 a year, and Rangoon is the great rice port of Asia. There is a large trade with parts of Asia which grow rice in insufficient quantities for their food

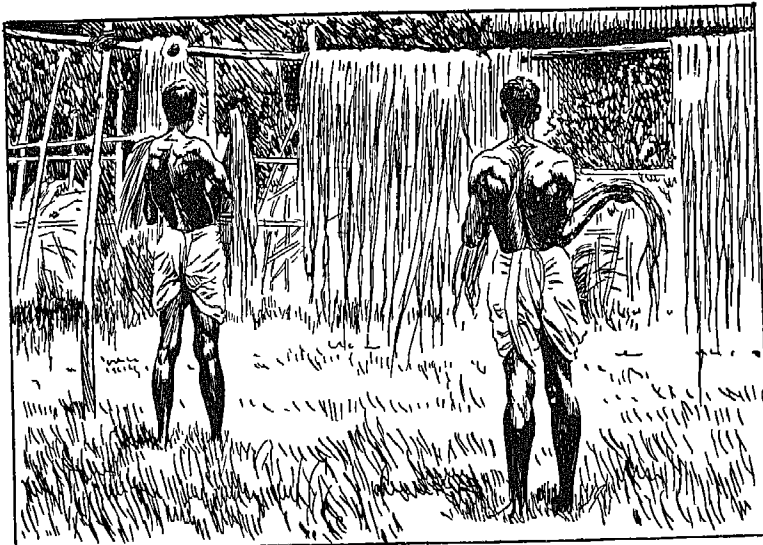
CUTTING JUTE

supply Much, therefore, goes to Ceylon, Java and Malaya, and the remainder goes to the other lands of the world where rice is only an occasional part of the diet.

WASHING JUTE

Jute.—Jute is the cheapest fibre in the world, but it is one of the most useful and valuable. It is essentially a product of India, and practically the whole of the world's supplies come from the Bengal area in the lower Ganges valley The fibre is used for the manufacture of a coarse cloth from which sacks are made In India these sacks are commercially known as *gunny bags*. When it is considered what a tremendous mass of material such as seeds, cereals and foodstuffs are carried from place to place in sacks, it will be realised that there is a great demand for jute fibre, and that the manufacture of the fibre into cloth and sacking must employ a considerable number of people Many attempts have been made in other countries to grow jute, or to discover a suitable substitute for sack making, but so far there has been little success. The increasing demand for the fibre has caused the production in India almost to double in the last forty years. The area under the crop is over two million acres, and of this area 88 per cent occurs in Bengal Nearly half the jute produced is exported, and the remainder is used in the local jute mills for manufacture into gunny cloth

DRYING JUTE

The jute plant, which is raised from seed, is a slender

WALTAIR NATIVE VILLAGE, UNITED PROVINCES

stemmed annual which grows to a height of from eight to twelve feet The seeds are sown in March and April. It flourishes on the alluvial soils deposited by rivers in regions of heavy rain and high temperature. In the early stages of growth the plant requires an abundant supply of water, and flooded ground is not injurious, but for later growth the soil must be well drained Before ripening, it is cut in August and September and retted, remaining in stagnant water for about three weeks before the fibre can be extracted by hand The fibre is then dried in the shade before being sorted, graded and baled. The bales weigh about 400 lbs. each, and the annual production of fibre is about 9,000,000 bales

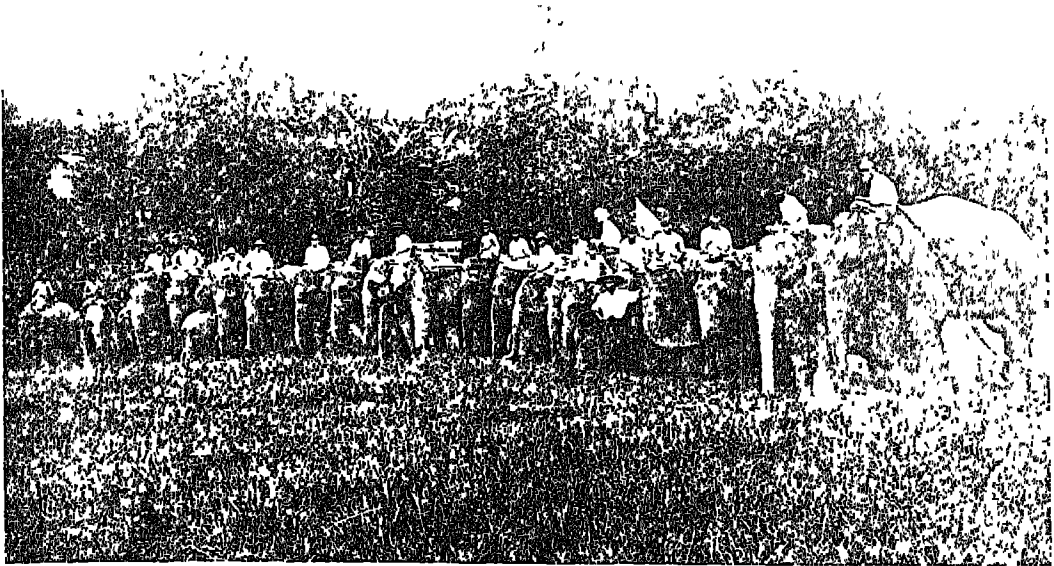
Until about 1835 the manufacture of jute into cloth was confined to India, where it was purely a peasant industry, but at that time an export commenced and the fibre was sent to Dundee, in Scotland Since then Dundee has developed into the largest jute-working centre of the British Isles. In recent years also, in Calcutta and the neighbouring region of Bengal, large mills with modern machinery have been established for the manufacture of cloth for export, and gunny bags for carrying much of India's raw material

With the increased transport facilities in all parts of the world in recent years, the demand for sacks has considerably increased To meet this demand India is endeavouring to open up new areas for the cultivation of jute. As a result of experiments and investigation by the Agricultural Departments, the cultivation is now established in the United Provinces, where conditions are similar to those in many parts of Bengal.

Although jute occupies only a small percentage of the total area cultivated in India, it contributes more than 25 per cent of the export trade of the country.

Teak.—Teak is one of the most important timber trees of commerce. It abounds in the hot wet forests of the East, the finest qualities coming from Burma.

The tree grows to a great size, the girth often being as much as twenty-five feet It often occurs that the first branches do not appear until the tree has attained a height of eighty feet. The wood is very hard and durable and of particular service for constructional work in tropical countries If thoroughly seasoned it does not warp, split or crack. The great value of the timber arises, however, from the oil which permeates it. As a result, it is immune from the attack of the white ant and is unaffected by contact with iron When immersed in water it does not readily rot, neither is it affected by marine insects which destroy other timber. First-class furniture can be made from it, since the wood has a rich brown colour and has a beautiful appearance when polished. It is also used to a large extent in the woodwork of ships and railway carriages. This can be attributed, not only to its great durability, but also to the fact that it does not readily ignite.

The usual method of obtaining the timber from the forest is to ring-bark the trees near the ground The bark is cut away in the form of a ring and the cut is made to penetrate the sap wood After this has been done the trees slowly die, and then

[*Reproduced by courtesy of India House*

ELEPHANTS ON PARADE

they are felled Elephants play an important part in all stages of the teak industry

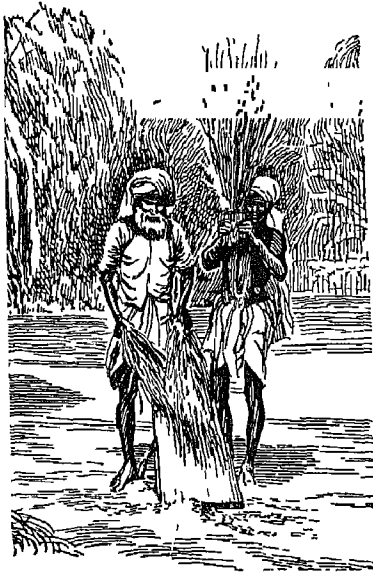
Teak is largely used in buildings, and outside most Burmese villages there stands a Buddhist monastery built of teak The Queen's Golden Monastery in Mandalay is built of teak profusely decorated and elaborately carved The carvings are often so wonderful and delicate as to give the material the appearance of flimsy lace.

CHILDREN'S STORY

Rice.—(The story of rice cultivation is told in Vol I, page 452, a few further facts are included here for the third year's course See also the Class Picture No. 67) Three-quarters of all the millions of people in India earn their living by growing crops, most of which are grown for food Rice, tea and sugar are grown during the hot, wet months, and millet and wheat during the dry, cooler months. Besides these crops, however, quantities of cotton and jute are needed for making into cloth at the factories, and tobacco, spices and teak are very important The soil on the great plains of India is deep and rich, but the one drawback is that the monsoon rains are not always heavy enough To guard against lack of water, there are now more than 10,000 miles of canals in India. Thousands of wells have also been dug from which oxen and men draw water and tip it into ditches that run beside the fields

The great rice port of the East is Rangoon on the Irrawaddy river in Burma, where the paddy fields lie on either side for many miles upstream During the rice harvest, the rough, unhusked grain is piled into paddy boats with sharp prows curving high up out of the water Twelve oarsmen row each boat and the steersman sits perched up in a sort of tower at the back Raised in this way he is better able to steer clear of the mudbanks which cannot be seen from

the lower deck. The boat has eyes carved and painted on its prow, so that "it may see where it is going"; when the wind blows upstream a square sail is hoisted on a tall bamboo mast

The paddy boats stop at Rangoon quay, where a string of porters run hither and thither like ants. They throw the paddy on to a great heap in front of mills, whose smoke adds to the heat of the place. Inside the mills, revolving stones strip off the rough, outer husks. The grains are then polished and the inner skins are ground off Finally the rice is poured out of great chutes into gunny bags, which are quickly stitched up by gaily clad Burmese girls, and lifted on to steamers to be taken overseas

NATIVE METHOD OF BEATING OUT THE RICE GRAINS

Tea.—(The story of a tea plantation is told in Vol I., page 453 See also the Class Picture, No 68) There are hundreds of tea gardens in India, many of which are on the mountain slopes of Assam to the north of Calcutta. In these plantations China seed was first used, but the native Indian tea plant grew better than the Chinese one, and now Indian tea has a larger sale than any other kind grown. England buys most of it, and after England the best customers are Canada and the United States of America. Indian tea planters spend much money and thought on raising the best possible crops of tea. Every estate is laid out with roads and a network of drains, and the machinery in the factory is up-to-date British planters look after the cultivation and manufacture of the tea, and the workpeople live in long lines or rows of huts on the plantations Plucking is done when the tea bushes are "flushing" or budding freely in the bright sunshine following showers Women and children do plucking and weeding, and men do roadmaking, draining and pruning. In Ceylon, when all the women on an estate are called out to pluck a fine "flush," the mothers sling their brown babies in cloths to the branches of a tree called a "nursery tree," where they are watched by a tiny girl while the mothers work.

Jute.—Standing first on the long list of goods sold by India to other countries is *jute*, which will not grow well in any other land Jute is a plant with a slender stem which grows to twice the height of a man. It is cultivated in great plantations around Calcutta and in the south of Assam. The river Ganges brings down vast quantities of rich silt from the lands through which it flows, and this silt collects at the mouth of the river, and forms a delta. The largest stream of the Ganges delta is the Hooghly, and jute plantations grow on its banks both above and below Calcutta.

The jute seeds are sown in April at the beginning of the rainy season, because the young plants need much water and heat Later on, the water has to be drained away The plants are cut before they flower, and their stems are placed in water for three weeks to soften. Then the fibres underneath the bark are pulled out, dried, sorted and packed in bales. A great many bales of raw jute are sent to factories at Dundee in Scotland The rest are made into cloth in

[Reproduced by courtesy of Indian Railways Bureau

KHASI WOMEN SELLING CLOTH, SHILLONG, ASSAM

the jute mills of Calcutta These giant mills rear their tall chimneys for forty miles along the Hooghly, and 250,000 people work in them. From the jute fibres are made stair carpets, canvas, school satchels, stiff linings, sacking and gunny bags These last are shipped to all parts of the world for holding grain, cement, sugar, cotton, coal, sand and many other goods Some countries buy the sacking from India and make up their own bags So much jute is wanted all over the world that plantations in India have doubled in size during the last forty years, and fresh fields are now being planted higher up the river Ganges

A great many native women of Assam weave on handlooms cloth from cotton and jute fibres When they have made a good supply of useful articles such as tablecloths, sheets, towels and bedcovers they spread them out on a cotton sheet on the ground outside their huts, and sell them to travellers passing by

Teak.—(An account of teak forests is given in Vol I, page 454 See also Class Picture, No 103) The forests of India cover a region twice as large as the British Isles, and in them are 2,500 different kinds of trees. One important tree is called sandalwood. The wood of this tree gives out a sweet scent and is often burnt for incense. Sandalwood oil is used in medicine, and is the most valuable forest product in the world Other trees found are ebony and rosewood, used for furniture and carving, and bamboo, which is so important to the native peoples for their houses, mats and baskets Bamboo has also been found good for wood pulp, from which paper and artificial silk are made. The most valuable tree of all, however, is the mighty teak, which abounds in the forests of India and Burma. Some of these forests are very difficult to reach, and the teak trees cost so much to move that they cannot be sold at a profit. The forests of the western Ghats and of the Andaman Islands, in the Bay of Bengal, however, are near the sea, and some of the teak forests of Burma are near the great river Irrawaddy

The elephant is the only animal powerful and sensible enough to carry or drag the huge logs of teak to where they are wanted The teak trees are cut in the hot season, and elephants drag the logs to the forest streams on which they lie floating until the heavy rains begin Men bind the logs with rattans, or tough canes, into huge rafts, which drift down the rivers when they are full of water People travel down on the rafts, sometimes building huts on them and keeping cows, goats and fowls. At Rangoon, on the river mouth, there are great teak yards and sawmills, with huge machines to carry the logs A few elephants help, too; they wade into the Irrawaddy and haul the rafts to the banks by means of chains fastened to their harness. Then they lift the logs with their trunks, or push them with their tusks A heavy mass is balanced on the tusks with the trunk coiled round the middle. If a log should be too heavy to lift, the clever elephant raises one end on to the stack of logs already piled in place, then he goes to the other end, pushes the log backwards until it balances in the air, and finally heaves it round into position with his trunk All this work the elephant does without any orders from the mahout on his back Elephants are most sensible animals. They seem to know the time of day, for without being told they stop work at midday for dinner and at the end of the day when work is over.

TEACHING HINTS

1. Concrete objects.—The stories in this lesson should if possible be illustrated by articles of Indian workmanship and of other objects made from teak and jute It is likely that some pupils will be able to bring to school curios from India such as ebony elephants, embroidered Indian cloths (or imitations, to give an idea of the style), a sandalwood box, a piece of jute sacking or a piece of teak

2. Handwork.—The pupils would enjoy drawing and colouring simple pictures of "elephants a-pilin' teak"; of humped oxen ploughing, or turning a sugar mill, of native women picking tea leaves while their babies are slung to the branches of a "nursery tree", or of a paddy boat on the Irrawaddy river The handwork lessons will be helpful in this connection.

3. Crops in India.—There is no country in the world where the wet season is of such vital importance as it is in India. On it

depends the prosperity and well-being of about 400 million people Without the rain they cannot produce their food The principal occupation of the people is agriculture, and by their work they provide all their own food, and supply the world with tea, rice, jute and many other useful products It is important that the children should be made to realise the following reasons why 400 million people can work, all the year round, at agriculture.

(*a*) There are extensive areas of fertile soil

(*b*) The soil is never cold

(*c*) As a rule, the soil receives abundant moisture when its temperature is highest

(*d*) A great many crops flourish in hot wet regions

(*e*) Among the crops are foods on which the Indians live.

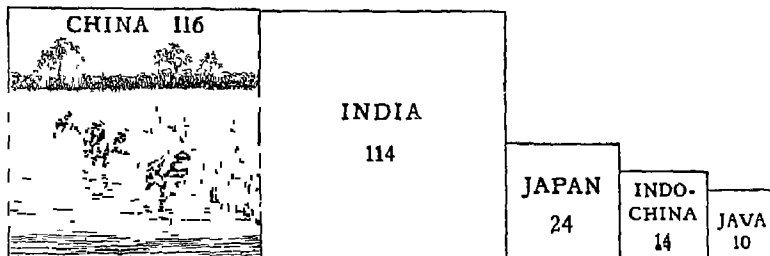
(*f*) The labour supply is plentiful and suited to the work.

(*g*) Irrigation, in the dry season, gives twelve months' production, with successive crops.

4. Tea.—The conditions for the growth of plants which give us tea, coffee and cocoa are a striking contrast to those needed for many other tropical products These plants each require a high temperature, heavy rainfall and rich soil, but they must have a well drained soil. Wet mountain slopes in tropical lands supply the beverages Rice, sugar, coconuts and rubber each requires high temperature and heavy rain, but they are products of the plains

Emphasise the condition of things in England before the establishment of world trade It is interesting to see that, apart from China, the countries which grow tea do not drink much tea The beverage is used for daily consumption in the countries which cannot grow the plant.

5. Memory work.—(*a*) The people of India grow crops of rice, tea and sugar in the hot, wet months. (*b*) Rice is the chief food in the wet regions, and millet in the dry parts (*c*) Rangoon on the river Irrawaddy in Burma is the chief rice port (*d*) Tea plantations grow in Assam to the north of Calcutta (*e*) India sends away more tea than any other country in the world (*f*) There are hundreds of jute mills on the river Hooghly near Calcutta. (*g*) Gunny bags made from jute are used for packing grain, sugar, cotton, sand and other goods. (*h*) Teak logs cut from the forests are made into rafts and floated down the rivers (*i*) Elephants haul and stack the logs of teak

6. Exercises.—(*a*) What is the chief work of the people of India? (*b*) Which crops need wet, hot weather? (*c*) Which is the chief rice port? (*d*) On what river does it stand? (*e*) Tell all you know about a paddy boat (*f*) What is done with the paddy when it arrives at the port in Burma? (*g*) Where are the chief tea plantations of India? (*h*) Tell all you know about them (*i*) What is jute? (*j*) Where does it grow? (*k*) How are the fibres obtained from it? (*l*) What is done with the fibres? (*m*) Of what use are gunny bags? (*n*) Tell about the trees which grow in the forests of India (*o*) What work is done by elephants?

THE WORLD'S CHIEF SOURCES OF RICE

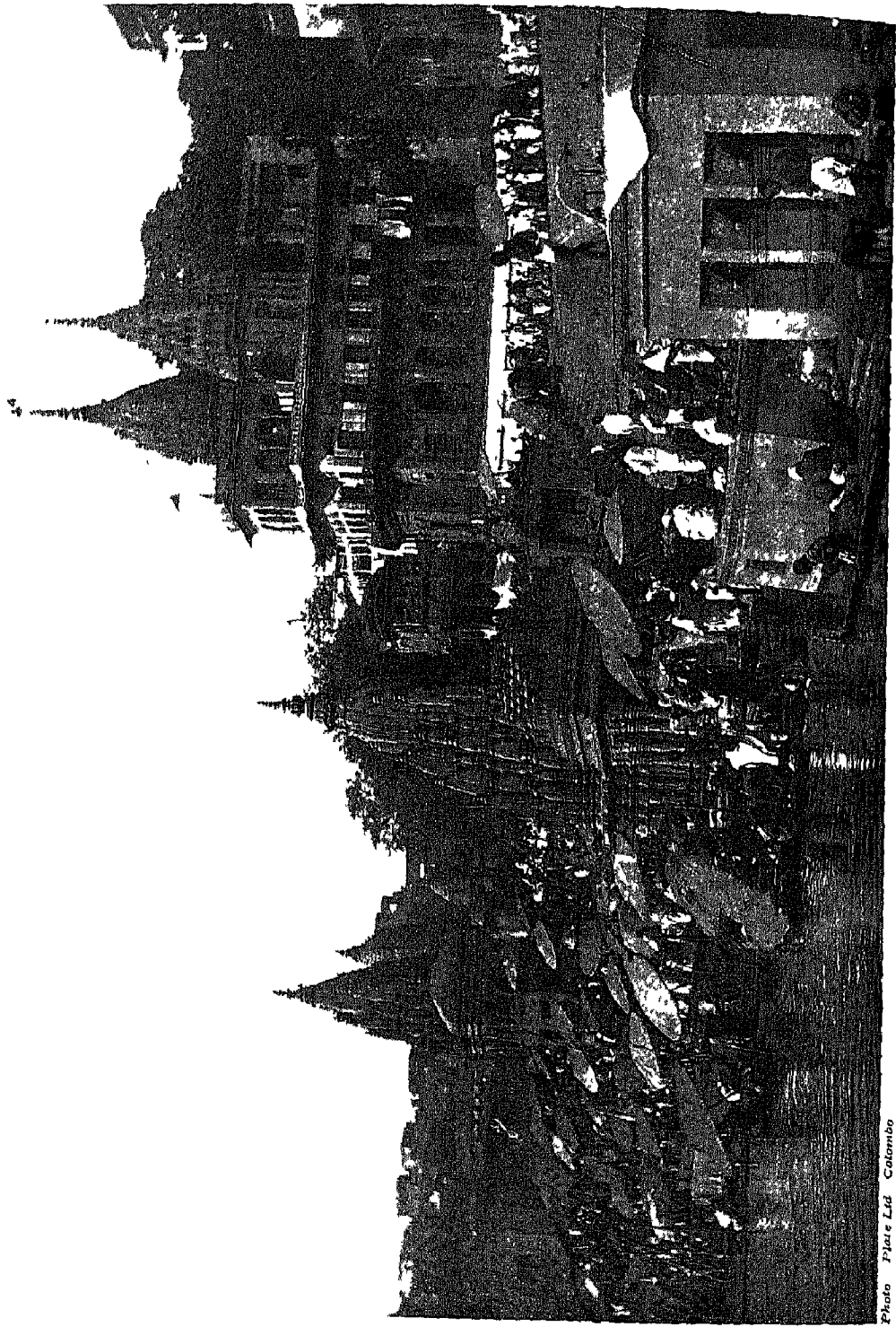



Photo Plate Ltd Colombo

BENARES

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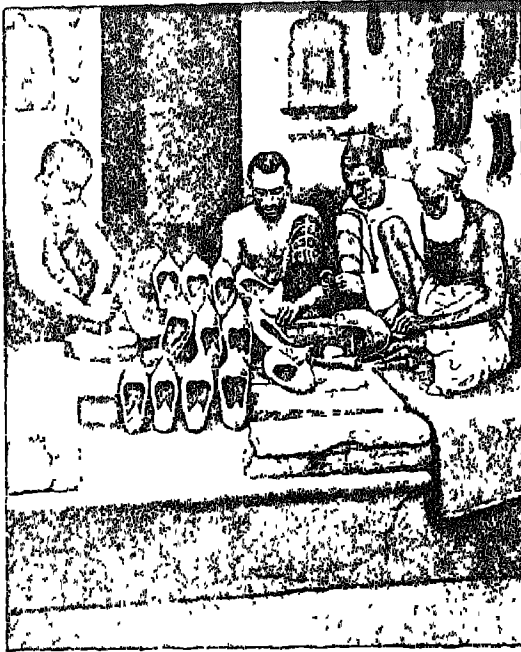
X. INDIA—TOWN LIFE

PICTURE REFERENCE

A SNAKE CHARMER AND A POTTER IN INDIA

(Class Picture No 101 in the portfolio)

THE illustration (No 101 in the portfolio) shows a Snake Charmer and a Potter The kaleidoscopic life of India would not be complete without the snake charmer He and his baskets of reptiles—a dreaded hooded cobra and an equally venomous viper or two—will be seen wherever there is a ready audience, such as a corner of a bazaar While an assistant beats a rhythmic tom-tom on a drum, the charmer plays upon his pipe made from a gourd In response to the music the reptiles uncoil, raise their heads and sway, sinking back as the strains cease The people never seem to weary of the performance, its uncanny nature being vividly reflected in their faces.

The potter's craft, which has passed from father to son for generations, is most valuable in the orderly pattern of village life In the picture is a potter at work, with a

SHOEMAKER IN INDIA

FRUIT STALL IN INDIA

lump of clay and jar of water at his side His wife, in front of his tiny hut, kneads the clay dug from the river bank, while he spins the wheel with his foot and dexterously shapes a jar. Earthen pots are in great demand, and for his labour he is rewarded with a share in the harvest and a little garden for vegetables

INTRODUCTION

Bombay.—Bombay, the capital of the Bombay Presidency, is situated at the southern end of a small island, eleven miles long and three miles wide, off the western coast of India On Malabar Hill stands the Government House, in lovely grounds, and here the chief work of administration goes on in the cool season (During the hot season the government migrates to Poona, a hill station and military camp on the plateau) Along the slopes of the ridge stand handsome mansions belonging to wealthy Indian and European residents, and commanding magnificent views. Back Bay, round which Bombay is built, is two miles across, the ridge of Malabar Hill, 200 feet high, is on its western side, and on the eastern side a long tongue of land tapers off to a point where stands a lighthouse. The true Indian part of Bombay, the bazaar, is found at the upper end of this tongue of land Next to the bazaar is the Fort, which is the business part of Bombay Here are found the banks, the shipping offices and the chief business houses Lastly there is the manufacturing quarter. The great waterway of Bombay harbour is seven miles wide at the opening and narrows to the northward

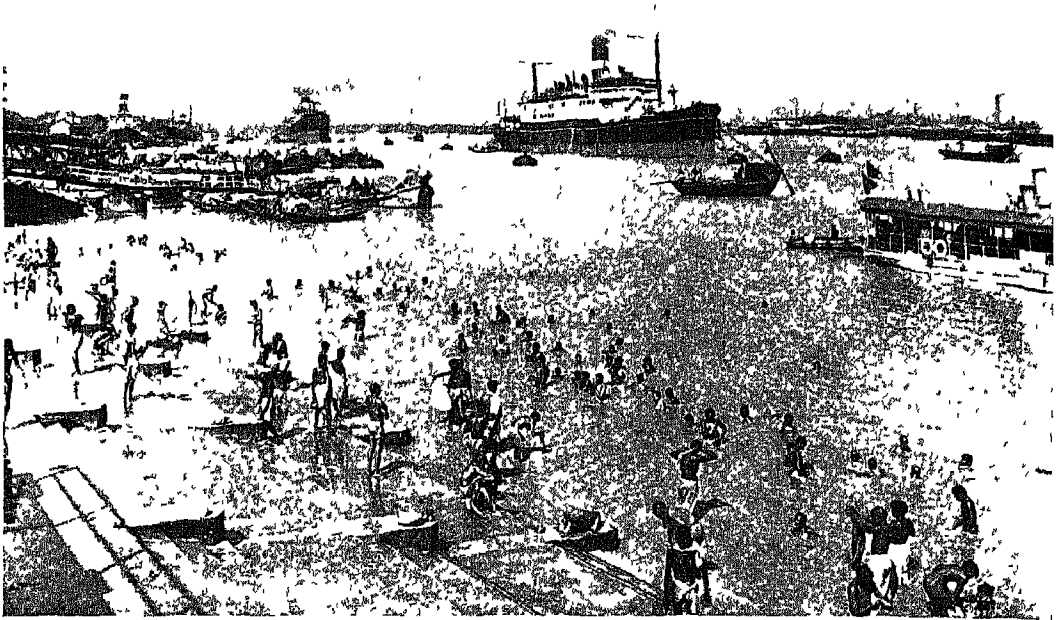
When the traveller approaches Bombay by sea and enters the "Gateway of India" he sees before him a magnificent and impressive panorama Numerous mountainous islands stud the stately waterway; on the left rise the dignified buildings of the city, and on the right in the distance the peaks

[Reproduced by courtesy of C P R

THE BAZAAR, BOMBAY

of the Western Ghats rise gradually from the coast where palms fringe the shore. Bombay has one of the finest waterfronts in the world; and it can claim to be one of the first cities in the world, because of its position as the gateway of India, its splendid natural harbour, and the energy and enterprise of its people The bazaar has broad main streets, where Indian crafts of various kinds are carried on with unceasing industry and skill, and where the shops are famous for the beauty, richness and diversity of their wares Among the fine buildings in the business area are the post office, a majestic building in appearance like a palace; the Victoria railway terminus, the Royal Institute of Science; the town hall, and the museum, all of distinguished architectural merit

Bombay University was originally established in 1857 as an examining body, and is still mainly concerned with examinations. It is modelled on the lines of the London University, there are many other institutions in other parts of India affiliated to it.

The population of Bombay is about 1,490,000, and is made up of members of many nations including Europeans, Afghans, Arab traders, Baghdad Jews, Sinhalese, Mahrattas, Parsees, Tibetans and others There are only about 100,000 Parsees, but they are highly influential and important on account of their great natural ability, initiative and progressiveness. The Parsees own many of the most important business houses in Bombay, and have a world-wide reputation There is also a fairly large

BABU GHATS, HOOGHLY RIVER, CALCUTTA [Photo E N A

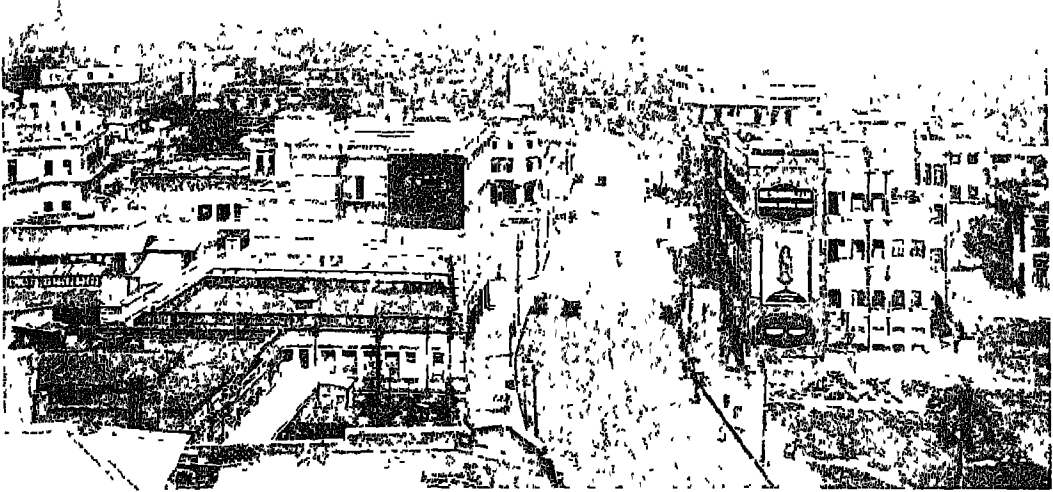
colony of Japanese in the cotton trade, but there are not many Chinese

Bombay has very fine docks and is the only port of India with tides large enough for docks on such an extensive scale When liners arrive in Bombay passengers can step out on the mole and reach the centre of the city by train in a few minutes, or they can enter a waiting train and journey on at once northward to Delhi, eastward to Calcutta, or south-eastward to Madras

The monsoon rainfall in the Western Ghats is impounded in three lakes, and falls to a generating station, which supplies electric power to the Bombay tramways, suburban railways and mills

Bombay's magnificent harbour and her position on the west coast have resulted in a great seaborne trade The chief exports are raw cotton, grain and seeds, and the chief imports are piece goods, metals and machinery Bombay has over one hundred spinning and weaving mills and is the centre of the cotton and textile industry Most of the mills have Indian managers and the greater share of the trade is done by Indian firms. Work in brass and silver, dyeing and tanning are other important industries of Bombay

Calcutta.—Calcutta is the capital of the province of Bengal. It holds an unrivalled position as a port of north-east India, being a focus of trade for the river, rail and ocean routes. It is a collecting centre for the produce of the fertile valleys of the Ganges and Brahmaputra, and has equal opportunities of commerce with Europe and the Far East.

Calcutta is a city of modern growth, but its buildings do not rival those of Bombay. The beautiful *Maidan*, or park, which contains many statues, and the marble

[*Reproduced by courtesy of Indian Railways Bureau*

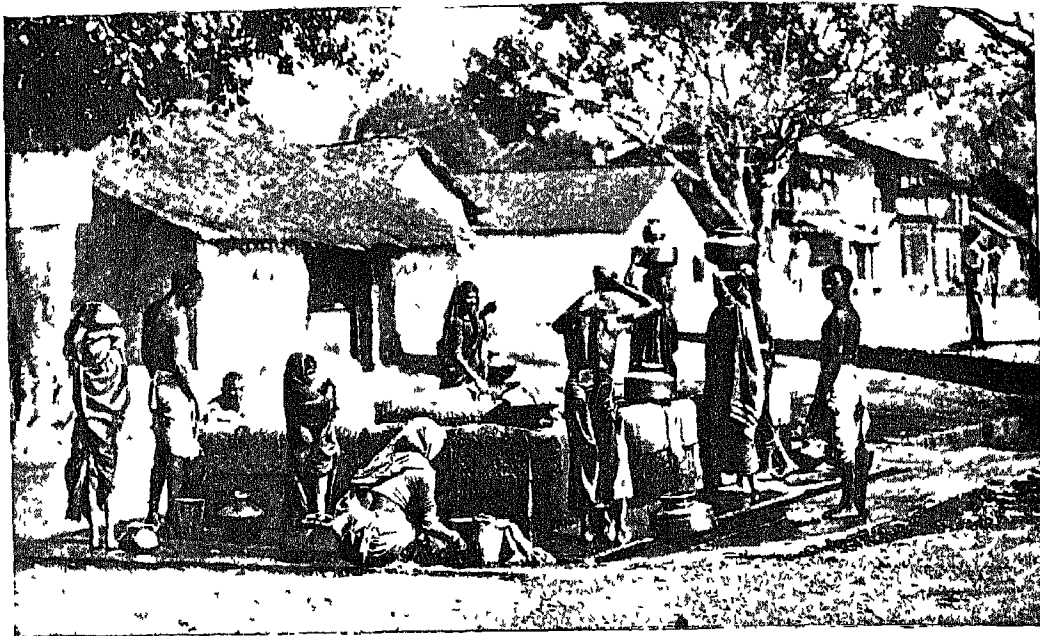
BENTINCK STREET—CALCUTTA

domed building of the Victoria Memorial are its chief features The city contains many fine commercial buildings, some zoological gardens and the Meteorological Observatory for Bengal

Modern sanitation and drainage have converted Calcutta, which was formerly very unhealthy, into a city equally healthy with any in the plains of Bengal The river Hooghly supplies the town with water, much of which is collected in an iron reservoir which is said to be the second largest in the world. Many of the insanitary areas have been cleared out, roads have been constructed and widened, and in several places model dwellings have been erected

Many races make up a population of over 1,500,000, only 53 per cent are Bengalis and there are some 13,000 Europeans Every day the railways convey 300,000 season ticket holders into the city to work in the commercial and manufacturing areas The University of Calcutta, which is modelled on the plan of the University of London, was founded in 1857 It exercises control over many affiliated colleges, and over hundreds of secondary schools in Bengal With its commercial prosperity and modern developments Calcutta claims to be the second city in the British Commonwealth

Madras.—In 1640 the East India Company obtained from an Indian ruler the site on which Madras now stands, and built a fort there. Many people settled around it, and from these small beginnings has grown the third city of India. Madras is now the most important seaport of south-eastern India and stretches for nine miles along the coast and more than three miles inland The population is about 650,000

Madras has no natural harbour, but an excellent artificial one has been constructed It is sheltered by breakwaters, and possesses all the equipment necessary to a great port. It is the meeting point of all the important military roads of southern India, and the terminus of two railway lines It exports

SCENE AT A COMMUNAL WELL IN AN INDIAN VILLAGE [Photo Topical Press

chiefly hides and skins, oil seeds and cotton, and imports timber, coal, grain and machinery

The city has five main sections George Town is the business area where the custom house and banks stand, and merchants' offices along the sea front face the new harbour and pier South of George Town is an open district containing Fort St George, many public buildings and a promenade called the Marina Farther south and west are thickly populated poorer quarters, and to the south and west of these lie two well-built suburbs Interesting buildings are the cathedral, Government House, Chepank palace (now the offices of the revenue board), law courts and hospital. Madras boasts a good drainage system and the water supply is filtered The industrial life of the city is centred chiefly in cotton mills, iron and engineering works and cigar factories The city corporation is the oldest in the land and is composed of fifty councillors and a president, most of whom are elected yearly Among the educational establishments are colleges for doctors, engineers, lawyers, veterinary surgeons, missionaries and teachers, a school of art and a university.

Agra.—At different times in history, Agra was the capital of India, and is now the chief city of a district in the United Provinces. It stands on the river Jumna, whose waters once formed a protecting boundary but have since greatly decreased in volume Agra is an important railway and trading centre containing cotton and flour mills, and it is also famous for the making of carpets. In it are several schools and colleges, amongst them an establishment for the medical training of men and women Its population numbers nearly 230,000

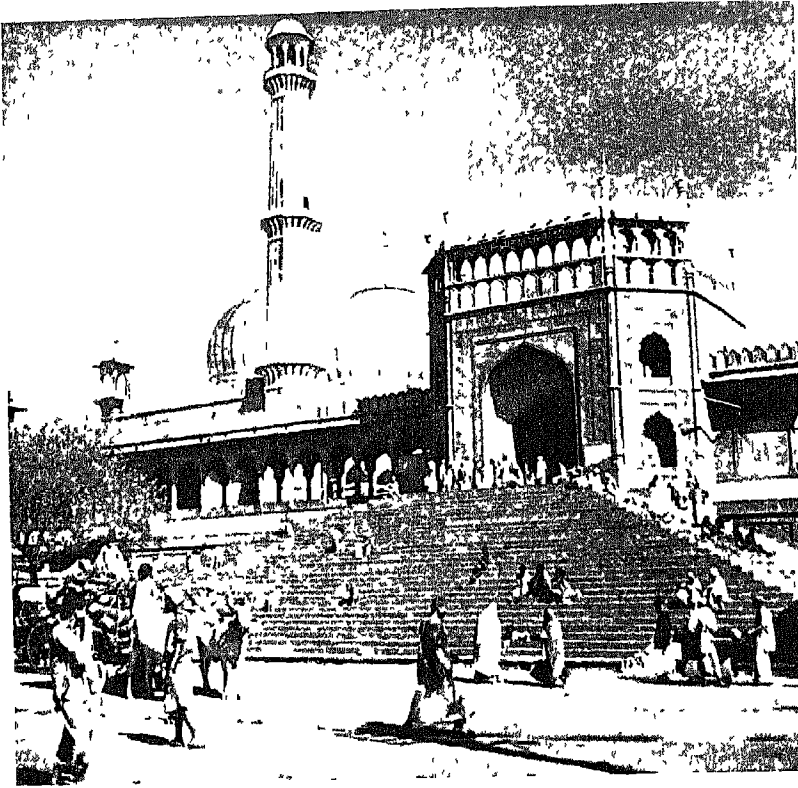
The supreme interest of Agra centres in its splendid buildings erected by the Mogul emperors who made it their seat of government Inside the high red sandstone walls of the fort stand the Jahangiri palace of Akbar the Great and the Pearl Mosque of his grandson, Shah Jehan Five miles from Agra, at Sikandra, is the magnificent tomb

of Akbar. Surpassing all these in beauty, however, the Taj Mahal remains the glory of Agra It is the white marble tomb built by Shah Jehan for his wife, who died in 1631. It is erected on a marble platform, and consists of a central domed building, two hundred and ten feet high, with smaller ones around it Four graceful towers rise from each corner of the platform, and the pure outlines of the buildings as well as their rich decoration are perfect Around the Taj lies a very beautiful garden enclosed by a red sandstone wall "All the spandrels of the Taj," writes Ferguson, "all the angles and more important architectural details are heightened by being inlaid with precious stones such as agates, bloodstones, jaspers and the like These are combined in wreaths, scrolls and frets as exquisite in design as they are beautiful in colour, and relieved by the pure white marble in which they are inlaid, they form the most beautiful and precious style of ornament ever adopted in architecture." The name of the architect, who was either a Turk or a Persian, was Ustad Isa (See illustration on page 566)

Delhi.—Delhi, the former capital of the Mogul Empire in India, and now capital of the Dominion of India, stands on the right bank of the Jumna in about the same latitude as Cairo The district round Delhi has been constituted a minor province.

Scattered round this new capital are the ruins of several older fortresses, among which are Old Delhi, about ten miles from the present city, and Tughlakabad, with its gigantic walls Remains of the historic past are found in all directions. The present Old Delhi is a reconstruction on a former site, it was rebuilt by the emperor, Shah Jehan, and his walls still enclose the greater part of the city, about five and a half miles in circuit In the Imperial Palace are found masterpieces of wonderful oriental architecture; the two most famous buildings are the Diwan-i-Am, or Hall of Public Audience, and the Diwan-i-Khas or Hall of Private Audience. The celebrated Peacock Throne once stood in the Diwan-i-Am, and its value was estimated at £6,000,000; the throne took its name from the figures of two peacocks standing behind it with outspread tails inlaid with sapphires, pearls, rubies, emeralds and other precious stones representing the gorgeous colours of peacocks' feathers In 1739 this priceless throne was carried off by a Persian invader The Diwan-i-Khas, a smaller hall, considered one of the most graceful buildings in the world, is a pavilion of white marble inlaid with precious stones, here is seen the exquisiteness of the gemlike decoration of Mogul art. Flowers and foliage of felicitous design cover the inner faces of the arches, purple and red porphyry, green serpentine and blue lapis lazuli give glowing colour to the ornamentation Jewellers and ivory workers now live in the Chandni Chauk ("silver street"), once held to be the richest street in the world, but during its history it was sacked four times, and its fine broad avenue, with a double row of trees growing down its centre, has frequently run with blood. A little south of the Chandni Chauk is the Jamma Musjid or Great Mosque, paved with marble and with three domes of white marble rising from its roof There is a multitude of historical relics to the south and south-west of Delhi, wonderful buildings, mosques, tombs and towers of white marble and red sandstone Among the modern buildings are the old Residency (now a high school), the church of St James, and the college and hospital of the Cambridge Mission.

During the siege of Delhi in the Mutiny of 1857, *The Ridge* was the British base, it is the last outcrop of the Aravalli hills and rises sixty feet above the city; the Mutiny memorial now stands at its nearest point to the city walls

The population of Delhi, doubled since the change of government in 1947, is about 900,000 Delhi is a great trade centre and is the converging point of a number of railways, it is about equally distant from Karachi, Calcutta and Bombay, thus occupying a

[Photo E N A

THE JAMMA MUSJID, DELHI

central position The city is famous for its hand industries in jewellery, gold and silver filigree work and embroidery, shawls, muslins, wood-carving and pottery.

A strip of territory on the Jumna river with sixty-five villages on the opposite bank forms the *Province of Delhi*, which has an area of 593 square miles

New Delhi was planned and built as a grand capital "in every way worthy of the ancient and beautiful city" Its establishment was announced by His Majesty King George V at the Imperial Durbar of 1911, and it was opened in 1931 The site is on the alluvial plain of the Jumna and at present occupies about five square miles, and its centre is about five miles from Shah Jehan's fort in Old Delhi Sir Edwin Lutyens, the famous architect, planned the city, and the chief government buildings are placed on a rock of the main Delhi ridge famous in the Mutiny Sir Edwin Lutyens laid out a large plan of very original design with a central mall and diagonal avenues The plan is based on a series of large hexagons Broad tree-lined avenues stretch out from these in all directions, some leading to Old Delhi and important monuments of the past, and wherever they converge are large round turning points for motor traffic. Along Kingsway, the grand mall overlooked by the government buildings, are official residences and the spacious houses of Indian princes A mile away is Connaught Circus, a huge modern shopping centre in a double ring, and beyond it in several directions rise block upon block of white stucco-covered brick buildings, the homes of thousands of lesser officials Altogether the many plazas set with lawns, masses of trees and flowering shrubs, the reflecting pools of water and charming vistas give the effect of a beautiful garden city Originally designed to contain 70,000 people, it already houses over 200,000, causing the utmost strain upon the electricity and filtered water systems and the tram and bus services This huge government expansion has put an end to the former annual migration of the army of officials to the hill

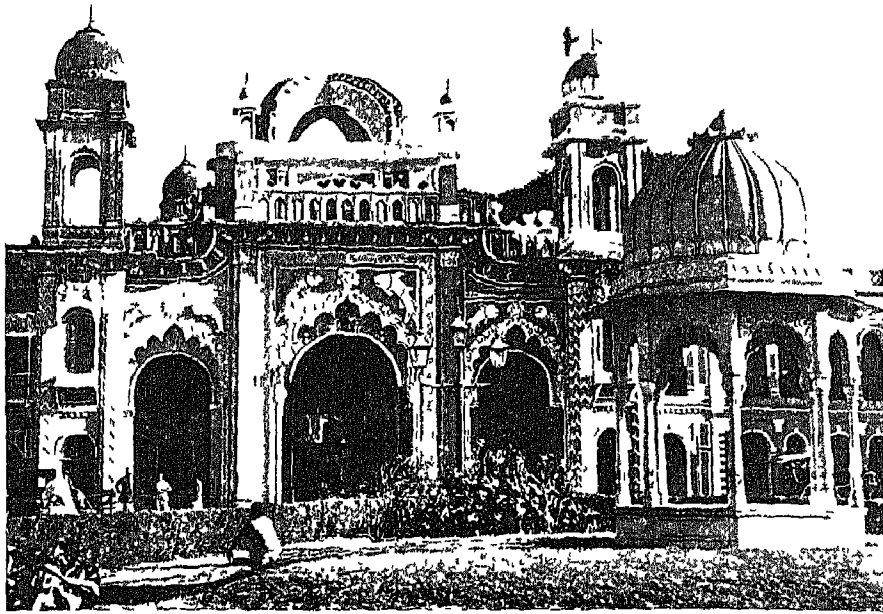
[*Reproduced by courtesy of the Royal Photographic Co, Delhi*

THE INDIAN WAR MEMORIAL ARCH AT DELHI

station of Simla during the burning summer months Now they remain in the myriad offices of the vast flat-topped buildings, seeking relief from the sun by hanging straw mats soaked with water before doors and windows and using other contrivances to cool the air

The three main government buildings include the two vast secretariat buildings, and Government House, the palace of the governor-general All these buildings, their steps, terraces and surrounding walls, are made in red sandstone to the base of the columns and white marble above Sir Edwin Lutyens has tried to unite the spirit of Indian architecture, both Hindu and Mohammedan, to that of English and Italian classic architecture, the result being interesting and harmonious

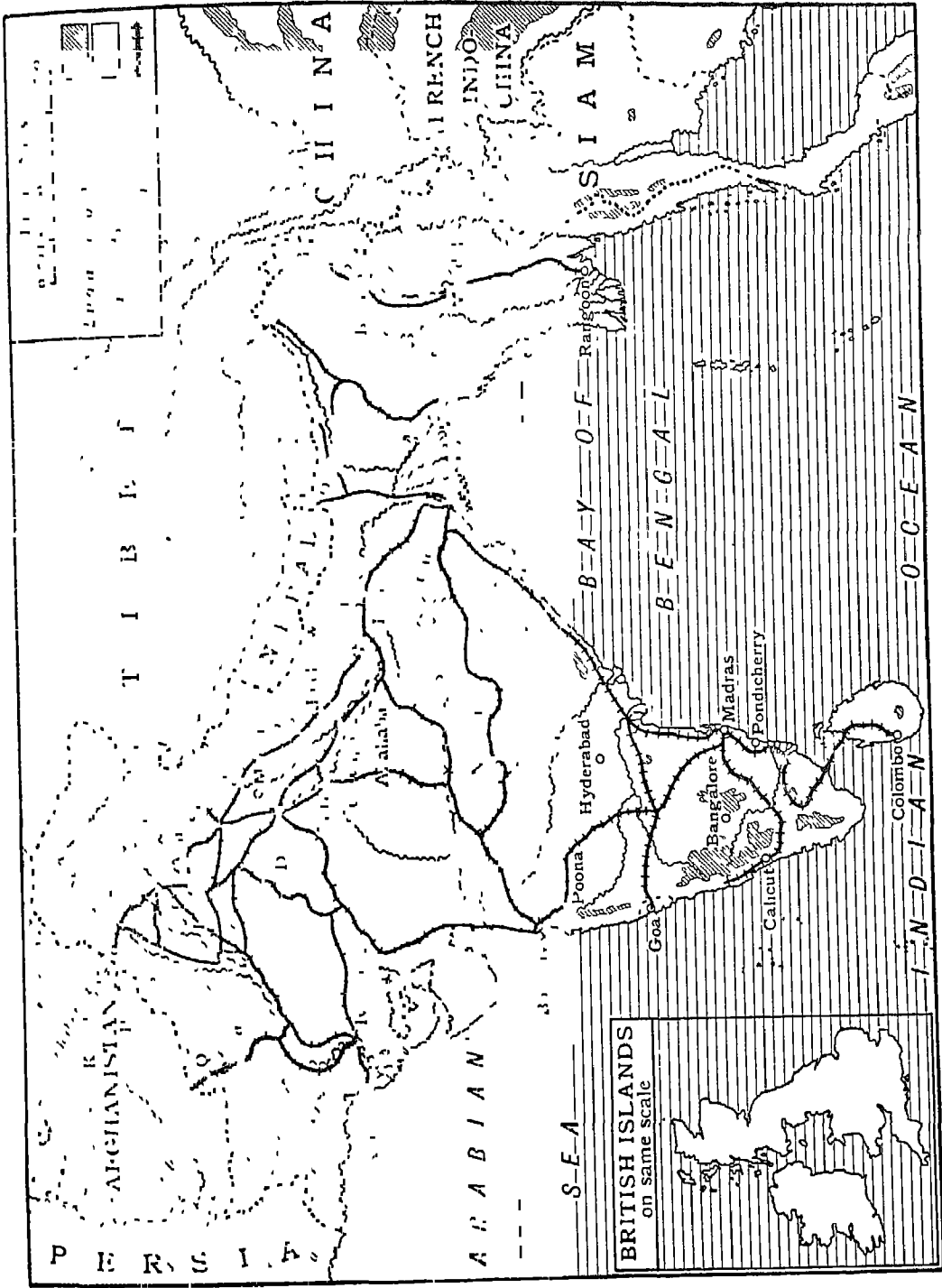
Benares.—The holy city of Benares holds the religious significance for the Hindus that Mecca possesses for the Mohammedans.

[Photo E N A

ONE OF THE GATES OF THE KAISR BAGH, LUCKNOW

Even five hundred years before the birth of Christ it was a very ancient and sacred city. The river Ganges sweeps through the city in a wide curve, from whose northern bank rises the town, a vista of tall buildings interlaced by narrow streets, surmounted by the minarets of the mosque of Aurangzeb Along the stone-lined river bank there are many *ghats*, or landing places, often highly ornamented, on which the worshippers gather to cleanse themselves from guilt by bathing in the sacred river. On these ghats muffled corpses are burnt on funeral pyres, for the Hindus believe that such a death by the river opens the door to salvation Those who visit the river from a great distance carry back some of the sacred water in brass vessels covered with basket work and decorated with the feathers of the sacred peacock The vessels are slung from bamboos which are decorated with bells.

The city is crowded with temples, shrines and palaces, but few of the buildings are of great antiquity Little shops lie in the recesses between the buildings, they display brazen gods, rosaries of sacred beads, embroideries, flowers, and brightly-coloured prayer bags. The level of the roadway is below the ground floor of the houses, which are often painted with pictures of the gods and goddesses of Hindu mythology. Over the shops the houses are richly ornamented with windows, verandas and overhanging eaves

It is the hope of every Hindu to visit the sacred area of Benares and to bathe in the river Ganges. As well as the poor pilgrims from all parts of India, numbers of rich Hindus resort to Benares and lavish large sums in charity. For this reason the city abounds in beggars who show every form of voluntary physical malformation Large numbers of Brahmans of learning instruct their disciples in Benares, making it the most famous centre of Sanskritic studies

The modern quarter lies west of the old town Benares is well served by rail, making it a busy commercial centre Its chief manufactures are silk brocades, gold

INDIA—CHIEF RAILWAYS

and silver work, lacquered goods and embossed brass work

Lucknow, which lies on the winding river Gumti, is an important business and military centre of the Dominion of India connected by rail to Calcutta and the Khyber Pass Lucknow has beautiful parks and gardens, it has its own university, its Medical College is the finest in India, and a fine modern hospital adjoins the College

With Allahabad it shares the position of headquarters of the government of the United Provinces There are important paper mills, printing presses and metal works, there are also large workshops, as Lucknow is an important railway centre, and it was one of the first towns in Upper India to make use of electricity. Native industries are gold and silver brocades, muslins, embroidery, brass and copper ware, vessels and ornaments in beaten silver, and pottery.

The defence of the Lucknow Residency in the Mutiny of 1857 is famous in history. Near the Residency is a memorial to Sir Henry Lawrence; it is a marble cross placed on an artificial mound thirty feet high.

A curious and interesting building in Lucknow is the Imambara (162 ft by 54 ft) which has an arched roof without supports and is one of the largest rooms in the world. It was built by a Nawab in 1784 to give help to the people stricken by famine

CHILDREN'S STORY

Home life in an Indian city.—An Indian city has many homes in it Some are the tiny, one-roomed cottages of poor workmen, closely packed along narrow streets, and others are fine mansions belonging to wealthy merchants Most of the homes are single rooms containing mats, bedding and some cooking pots. Tiny children roll about in the sun The older ones have to work as soon as they can earn a little money, and many of their fathers are porters who carry loads about the city

A PUNJAB EKKA

In the chief bazaars the houses are of two or more storeys, with balconies and flat roofs on which people sleep during hot nights The wooden balconies are carved and painted in bright colours which make the streets look gay in the sunshine On the ground floors are tiny shops rather like cupboards without doors to them The owners sit on rugs amongst their goods, busily making new articles for sale, and waiting for buyers They never ask the passers-by for custom, or draw attention to their goods.

The streets are thronged with men and women, mostly barefooted, some wearing brightly coloured robes and others loincloths and turbans. Oxcarts and tiny donkeys with heavy loads push their way through the crowds, and sacred bulls wander about as they please

Richer Indians live in homes away from the bazaars Their houses are built with narrow, winding paths between them, which can be closed by strong doors Down the paths the houses are entered by carved doorways leading into yards around which the houses are built At one time the men's rooms were below and the women's above and were strictly separate Men could not enter the women's part, which was called the *zenana*, and women could not leave it excepting to visit another zenana Then they were closely veiled, no man but her husband

was allowed to see the face of a high caste Hindu lady This custom, however, is rapidly passing, for now there are schools and colleges for girls and on leaving them they mix in the work of the busy world and live in more modern ways

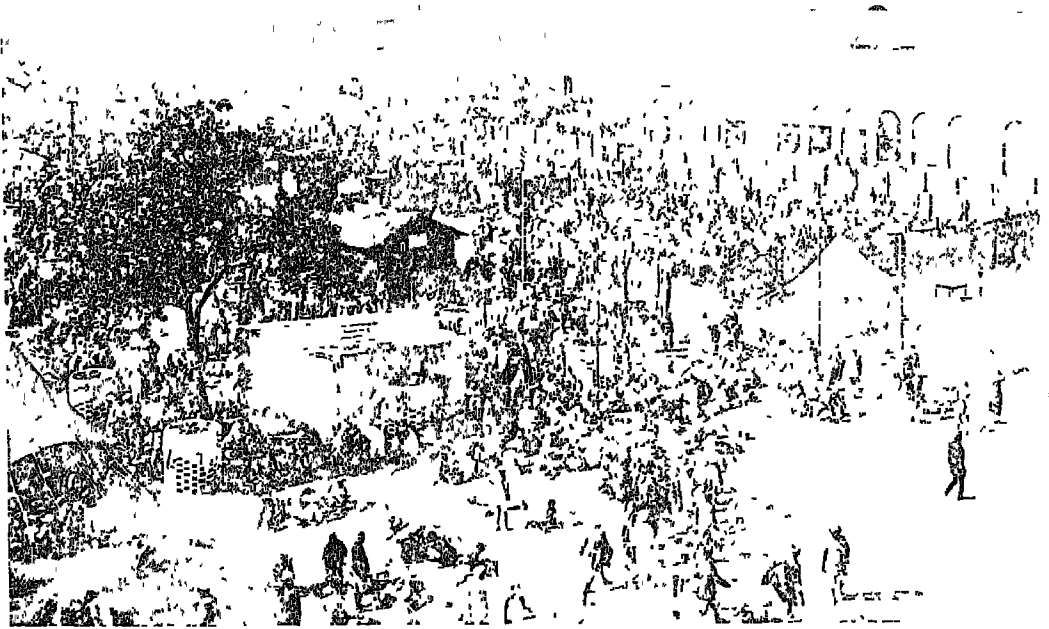
The rajahs or Indian princes live in palaces built of marble and beautifully decorated Lovely gardens spread around them The floors of the rooms are spread with handsome carpets and cushions, and there are small carved tables on which pipes and cups are placed On a special occasion a rajah may ride out among the people, then he sits in a gilded *howdah* or throne set on an elephant splendidly dressed in cloth of gold and jewels The people in the towns and villages delight in seeing the gay procession of elephants and horsemen, and servants in costly silks

There are nearly a thousand rajahs in India, some rich and some quite poor They now join with the government in controlling their states according to the Dominion to which they belong, and at their courts are officials to advise them In some provinces rajahs have built schools and hospitals for their people Often a rajah takes a holiday He leaves behind his muslin turban, his curved sword, his silken robes and slippers, and goes away in European dress to London or to Paris There he is a foreign gentleman, no different, excepting for his dark skin, from any other gentleman in the city

Delhi.—In the far north-west of the great plain of India, the city of Delhi stands on the wide Jumna, the chief tributary of the Ganges There are really two cities side by side—Old Delhi and New Delhi Old Delhi is in the midst of a plain covered with the ruins of many former cities, and three miles away from it stands New Delhi, which is now the capital of the Dominion of India The memories of Delhi reach far, far back, and most of its history is lost in the mist of ages The old city is enclosed by a great wall whose wide gaps tell of battles that have raged around it For forty-five miles beyond the wall can be seen the remains of the older cities—here a crumbling tomb or mosque, and there a piece of a once gaily coloured gateway The stones of Old Delhi tell stories of past Indian kings, of Mogul emperors, and of British rule The Mogul emperors, who were Mohammedans, built splendid mosques, forts and palaces in many cities on the Jumna The most famous of the Great Moguls was living at the same time as Queen Elizabeth of England

There are eight gateways in the wall around Old Delhi. Where it faces the Jumna is a fort of red sandstone enclosing a palace of white marble. Beyond the fort stands the Jamma Musjid, the largest mosque in the world It is a mighty building overlooking the whole city and built on a high platform up to which on three sides run wide flights of steps At the head of each flight is a splendid gateway, and the eastern gateway is opened for no one excepting the governor-general of India and the governor of the Punjab On feast days thousands of Mohammedans dressed in white meet at noon to say their prayers inside this magnificent temple.

In New Delhi the streets are broad and straight, lined with trees and surrounded by parks Here are the government buildings and the governor-general's palace, with lawns, fountains, orange trees and flowers all around The position of New Delhi makes it a suitable place for a capital It is almost equally distant from the ports of Calcutta, Bombay and Karachi, and it is the meeting point of the chief railway lines In New Delhi is the grand Parliament building where members meet to talk over the affairs of the Dominion of India, just as others do at Karachi for the Dominion of Pakistan

The streets of the old quarter of Delhi are narrow and crowded with a mixture of peoples, cows, donkeys and goats. Cotton mill chimneys pour trails of black smoke into the blue sky In the bazaars are workshops where marvellous figures are carved in ivory The clink, clink of brass and copper workers is heard, and outside their

[*Reproduced by courtesy of Indian Railways Bureau*

ALLAHABAD MELA—ENCLOSURES FOR PILGRIMS

shops are piles of household articles, graceful candlesticks and ornaments of yellow brass on one side and red copper on the other Farther on are stalls full of little embroidered caps The shops are not like English shops, they are tiny and dark Spread out on clean white sheets on the floors are silver and ivory work, hand-painted cloth, and gold embroidery finer and richer than any to be seen in the finest shop in London.

Allahabad.—Flowing south-east from Delhi to Agra, the Jumna winds across the fertile plain until its bright waters meet the muddy streams of the Ganges at Allahabad The place where they join is a sacred one in the eyes of all Hindus Thousands of pilgrims journey to it, especially at the times of the *melas*, or religious fairs, held every year at the full moon in January and February

The day on which they visit the fair is the most exciting in the whole year for the people of the towns and villages around Allahabad. They are up in the morning long before sunrise. All wear their gayest robes kept specially for the mela, and the women and girls put on bracelets, anklets, earrings and necklaces sparkling with jewels Many people crowd into carts drawn by bullocks and covered with hoods to keep off the hot sun The great cart wheels creak as they turn round, they are never oiled, for the creaking is supposed to frighten away evil spirits Near the city streams of people are seen pouring into the road from every turning When they reach Allahabad they all go straight down to the sandy shores, recite their prayers and bathe in the holy river to make themselves pure.

Presently a grand procession approaches.

The people swarm into the city and take up their places along the sides of the streets The blue sky overhead, the brilliant colours of turbans and robes, and the women's ornaments glittering in the sun make a wonderful picture Soon is heard the beating of drums The onlookers begin to shout, and a huge car on which stands the image of a god comes slowly into view The car is splendidly decorated and drawn by white oxen.

Afterwards the day is given up to pleasure, and merrymakers flock to the fair on the outskirts of the city. On the open ground countless rows of stalls have been set up. Sweets, cakes, trinkets, fruits, mats, cloth, salt, mirrors and knives are displayed, and customers move in crowds along the narrow paths between the rows. A large circle gathers round the snake charmers who play on their pipes while snakes coil about their bodies. Farther on are men with performing bears and monkeys, acrobats dancing on ropes and tying their bodies into knots, a juggler making a mango tree grow up from a seed in front of people's eyes, and a bird tamer with a sparrow on his finger He puts the tiny bird on the ground, lays a handful of beads beside it and holds up a thread The clever sparrow takes the beads one by one and threads them on the string till it has made a pretty necklace

Before sunset the crowds break up and start for home, as it would not be safe to travel in the dark because of wild beasts from the distant jungle

Benares.—Benares stands on the Ganges one hundred miles below Allahabad and four hundred miles above Calcutta. Hindus look upon it as the most holy place in all India Temples and bathing ghats lie along its river front for three miles The ghats are wide flights of stone steps leading down to the water, and they are always packed with worshippers. A visitor to Benares hires a boat at sunrise and slowly floats down the river From his boat he sees hundreds of pilgrims moving up and down the ghats. The men at the foot of the stairs throw off their robes and dip themselves in the river The women slip bathing robes over their shoulders and take off their dresses underneath There is no laughter or play It is all as serious as a religious service Some pilgrims have garlands of flowers round their necks They go out into the stream and bend down until the wreaths are lifted off by the water and float away on the river Others throw offerings of sandalwood or sweets into the stream.

At one spot clouds of smoke rise into the air This is the burning ghat, where the bodies of dead Hindus are burned, after which their ashes are cast into the Ganges All Hindus wish for so blessed an end Boats sail down the river laden with wood which is stacked near the burning ghats and sold to mourners who build funeral pyres with it

Those people sitting on the ground with large umbrellas are *sadhus* or holy men, who have come to stay at Benares and live on money and food given to them It is believed that to give alms to a holy man is a good deed which is rewarded in another life, so pilgrims do not forget the sadhus Many of these holy men spend their lives in thought, neglecting the world and their own bodies. Some lie on boards covered with spikes; others hold up one or both arms till they wither and can never be used again. All willingly give themselves pain in order to gain the favour of God and the honour of their fellow men.

After bathing, pilgrims visit the temples. The streets of Benares are so narrow, winding and crowded that it is not easy to see the beauty of the famous temples, some of which are very old. The Golden Temple has a great dome covered with gold; the Monkey Temple is in memory of Buddha who loved animals; and the Well of Knowledge is said to have been dug by a great god Its water is believed to wash away a man's sins, so pilgrims buy some of it from the priest. He pours a little into each man's right hand, and the pilgrim puts a few drops

[Reproduced by courtesy of Indian Railways Bureau

SADHUS AT BENARES

into his mouth and the rest upon his head Along all the streets of Benares hurry worshippers carrying little brass baskets of flowers or rice, as offerings to the different gods of the temples The echoes of such footsteps have been heard in the city for more than two thousand years, and pilgrims say, "Happy is the Hindu who dies in Benares"

Calcutta.—From Benares the Ganges flows on towards the east coast of India and its waters are increased by many tributaries Near the sea it is joined by the great Brahmaputra, which flows through Tibet on the northern side of the Himalayas, and sweeps round their eastern end Now the Ganges breaks up into many channels and flows through a mighty delta to the sea

Calcutta stands on a great cake of Ganges mud raised a few feet above the level of the Hooghly, the chief branch of the Ganges delta Here there were once only a few villages scattered amongst jungle in which tigers, deer and crocodiles lived A great city has now grown up because of the immense trade carried on The stores of rice, jute and tobacco from the plain of the Ganges pour into Calcutta, to be carried away overseas by steamers Great quantities of tea from the gardens of Assam, coal from Bihar, and hides and skins are sent out every year from Calcutta A bridge across the Hooghly joins Calcutta to Howrah, the jute factory district on the opposite bank of the river. The centre of Calcutta is the Maidan or park, a great open space beside the river Near it stand many fine buildings and it is bounded by splendid streets in which are mansions belonging to European merchants, bankers and rich Indians Calcutta is the first port in India and the capital of the province of Bengal

In the poorer part of the town the houses are built of mud and thatch, and the streets are only lanes In the crowded bazaars

of Calcutta are seen men of all nations, drawn in the interests of trade to this great port of the East

TEACHING HINTS

1. Friday afternoon tale.—The story of "Rikki-Tikki-Tavi" from Mr Kipling's *Jungle Book* would give the pupils another picture of India, and they would be delighted to listen to the adventures of the mongoose and cobras

2. Town life.—There are two outstanding features in the life of every large Indian city

(*a*) Numbers of poorer people live in the ports and great cities, where they constitute the labour supply; hence every town has a quarter which is a crowded area of poor habitations

(*b*) Religious influence is seen everywhere in the numerous temples, in the bazaars, and in the freedom of movement of the sacred cows

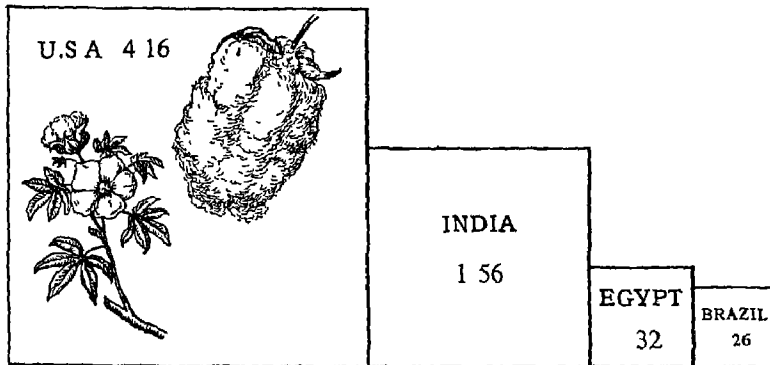
3. Typical factories of the towns.—

(1) *Cotton* India is the second largest producer in the world of raw cotton, and the millions of India are mainly clad in cotton material Cotton mills are numerous in Bombay and its neighbourhood (Cotton is grown mainly in the Deccan)

(2) *Jute* India is practically the only producer of jute, and a large part of India's produce is exported in gunny bags (made from jute) Bengal produces most of the jute and Calcutta has many large jute mills

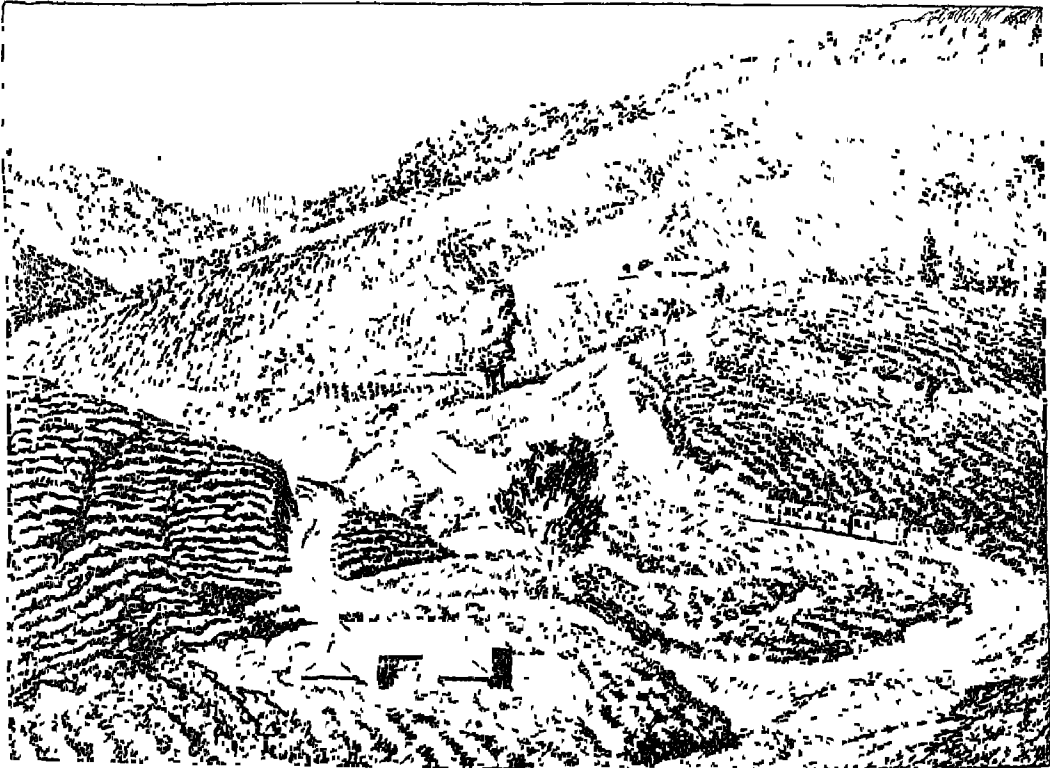
(3) *Tea* India is one of the largest exporters of tea, but the tea of commerce is partially a manufactured product. Many factories for the preparation of tea for export are found in the towns of north-eastern and southern India

4. Hill stations.—In dealing with these resorts of the richer classes during the hot season, emphasis should be laid on the effect of altitude in reducing temperature. The air is warmed mainly by its contact with the earth's surface, and the warmest air is in contact with the earth Temperature falls roughly 1° F for every 300 feet increase in altitude The plain of India has a mean temperature of 90° F during the hot season. An English summer has a mean temperature of 60° F Simla stands about 9,000 feet above sea level

5. Mountain peoples.—The dwellers in mountain regions tend to preserve an independence of character, and change very little during the course of time The diffi-

THE WORLD'S CHIEF COTTON PRODUCERS
A YEAR'S CROP IN MILLIONS OF TONS

culty of access of high regions results in isolation and the preservation of old customs, types of speech, dress, and modes of living.

6. Memory work.—(*a*) New Delhi is the capital of the Dominion of India, and Karachi is the capital of Pakistan (*b*) It stands at equal distances from Calcutta, Bombay and Karachi, and is the meeting place of four main railways (*c*) In the little shops of Old Delhi beautiful carving, metal work and embroidery are done by hand (*d*) Thousands of pilgrims go to Allahabad for the melas in January and February (*e*) Calcutta is a famous port on the delta of the Ganges, and sends away vast quantities of jute, tea, coal, hides and skins.

7. Exercises.—(*a*) Describe a poor home in an Indian city (*b*) What would you notice about any Indian shop? (*c*) Tell all you know of the *zenana* (*d*) How does a great rajah travel about his province? (*e*) On what river stands Delhi? (*f*) What buildings may be seen in this old city? (*g*) Why is New Delhi a good place for a capital? (*h*) What important buildings are at New Delhi? (*i*) What may be seen in the bazaars of Old Delhi? (*j*) Where is Allahabad? (*k*) What is a *mela*? (*l*) Describe the procession at the mela (*m*) Tell about the snake charmer, the juggler and the bird tamer (*n*) Why do Hindu pilgrims go to Benares? (*o*) What is a *ghat*? (*p*) What do pilgrims do in the river Ganges? (*q*) What temples may be seen at Benares? (*r*) Where is Calcutta? (*s*) Why has it grown into such a great port? (*t*) What goods are sent away from it every year?

THE NUWARA ELIYA RAILWAY, WINDING UPWARDS THROUGH THE PLANTATIONS NEAR PEDROTALLAGALA, THE HIGHEST POINT OF CEYLON NUWARA ELIYA IS A FAMOUS HEALTH RESORT

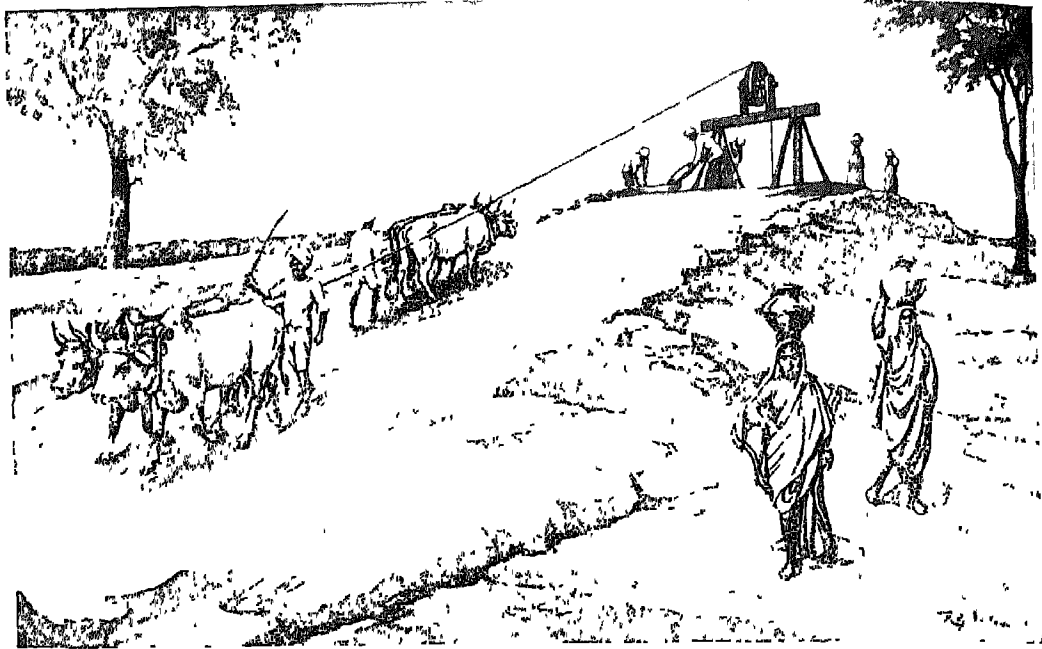
XI. INDIA—VILLAGE LIFE

PICTURE REFERENCE

AN INDIAN PEASANT'S HOME

(Class Picture No 102 in the portfolio)

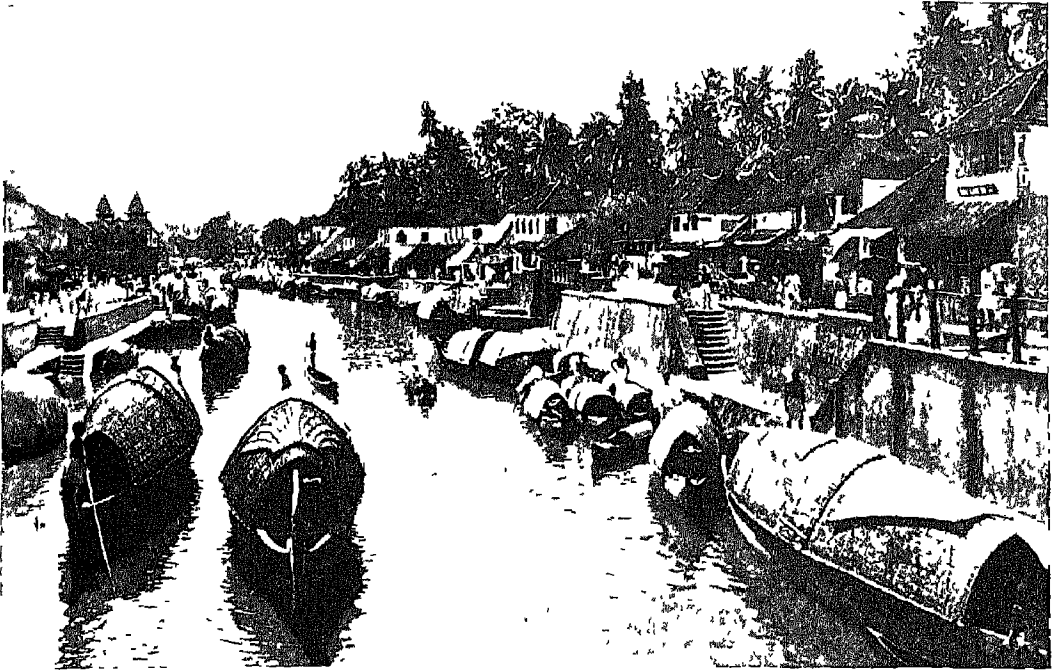
THE illustration (No 102 in the portfolio) shows An Indian Peasant's Home The pupils will note the simplicity of the dwelling and learn that, with many hours spent out of doors by the family, its use is mainly for meals and for shelter, and very little for enjoyment Usually there is one room, although in this case there is a small additional chamber beyond the door Only the bare necessities are provided, the opposite extreme to the clutter of objects common in European homes Thus there are chiefly the simple cooking utensils about the open fireplace, the coolers for drinking water in the corner, and a roll of bedding leaning against the wall of the recess used for sleeping. No furniture is desired, as by long practice sitting in a squatting position gives perfect ease, and there is no covering for the scrupulously clean floor

In the picture the outside work of the day is over and the wife is sifting grain in

AN INDIAN WELL

preparation for the evening meal after crushing it with the pole leaning against the wall In the meantime the husband enjoys a quiet pipe, drawing the smoke from the bowl of his *hookah* down into the cooling water in the container below and up through the long tube By his side his small son, an earnest schoolboy, is busily going over his homework It will be seen from the picture what a number of pots of various sorts and sizes are needed in a home The poorest peasant uses at least a dozen

INTRODUCTION

Notwithstanding the enormous population of India (one-sixth of the world's people) there are few large towns in the country Bombay and Calcutta are among the world's largest cities, and these have grown great through trade. Karachi, Madras and Calicut are ports of a moderate size, and again it is trade that accounts for their growth In the interior the largest towns are those whose greatness may be attributed to religion, administration, strategy or transport

The great bulk of the people are peasant farmers, and these, of necessity, are dwellers in villages Only 10 per cent of the people live in towns of 5,000 inhabitants or more The average village in India is not a place of beauty The dwellings are usually single roomed, mud walled and grass thatched, and each contains a crowd of humanity There are few utensils and little furniture. The villages stand in the areas where the workers are required for the cultivation of rice, tea, jute, cotton, etc A group of trees usually marks the site of a village At the centre stands the temple, to which the villagers resort for advice on every conceivable topic. A tour of any village will reveal the public letter writer, the moneylender, the metal worker, the weaver and the village barber who carries on his work in the open air At the close of the day's work the whole

A SCENE ON A CANAL IN ALLEPI, TRAVANCORE STATE [Photo E N 1

population of the village usually gathers in the open to listen to the story teller, or to watch the juggler or snake charmer. Sadhus or holy men are a conspicuous feature of most towns and villages.

Life for the great mass of the people of India is dominated by a religion which determines the upbringing, customs, habits and general mode of life of the inhabitants About 70 per cent of the people are Hindus. Most of them are vegetarians, and to them the cow is a sacred animal Pilgrimages are made to sacred spots such as Benares, Hurdwar and Allahabad. Infant or child marriage is common. There is a decided prejudice against the re-marriage of widows, and when this is considered in connection with the custom of early marriage of girls, it will be seen that widows are numerous in India

Until the introduction of European manufactures, everything in daily use in an Indian household was made by hand, and every Indian workman is a true artist In the handicrafts dealing with gold, silver, enamels and jewellery India takes a high position Bracelets and armlets of gold and silver of Indian make are well-known in Europe. The engraved brass and copper work is in great demand in western markets Hindus prefer brass utensils for domestic use, and Mohammedans, as a rule, use copper

It is, however, in the production of woven goods,—cotton, silk, lace, embroidery and carpets—that the handwork of India is best known in other countries. Weaving is the chief employment of the women in India In every village and town women may be seen using the simple frame with their skilful fingers. Scarcely less universal is the Indian potter Outside every village the peasant may be seen moulding the clay with his hands and surrounded by rows of things that he has made.

Of the many peoples in India the Parsee is one of the best known. His chief stronghold is Bombay, where he is usually a man of wealth. Parsees are also found scattered throughout the country, where they are shopkeepers and men of commerce. Although forming only a small percentage of the total population, their wealth has given them prominence in India.

The Parsees are descended from the ancient fire worshippers, who were driven from Persia by religious persecution in early times. They maintain the rites of their ancient faith by keeping up the sacred household fire and building their "temples of silence" where the bodies of their dead are exposed to the voracity of vultures.

KASHMIR WOMAN SPINNING

The dress of the Hindu is the *dhoti*, a long strip of cloth rolled round the figure, passing under the legs and fastened behind the back. This garment leaves the legs and upper part of the body uncovered. Men of the upper class wear a short shirt and a long white robe (*amah*). Their heads are always covered with turbans of different sizes and colours, according to the caste to which the individual belongs. The women wear the *choli*, a little jacket with short sleeves, and a large piece of cloth which is folded round the body and then thrown over the shoulder. Sandals take the place of shoes. Both men and women are fond of jewellery, and head, arms, legs and feet are often elaborately adorned in some way or other. Women frequently have the ears weighted down with heavy earrings. Certain customs are a striking contrast to those of the western world. Thus, the head is never uncovered as a sign of salutation, and on entering another person's dwelling place, the head is kept covered but the shoes are left on the threshold. In the dwelling a white cloth covers the floor and on this the people sit cross-legged on cushions.

CHILDREN'S STORY

Mavati's home.—Mavati lives in a large village on the great Punjab plain. His home is made of mud, dug by his father from one of the shallow pits which lie around the village and are filled with water after the rains. From the mud of these pits all the villagers build their huts, and more mud is taken every time a new hut is built, so the pits gradually grow larger. Mavati's home has mud walls and a hard, mud floor, swept very clean by his mother. The roof is thatched, and in the one small room is a fireplace of mud bricks. There are no chairs or tables, for his father and mother, his little brother and himself sit on the floor and eat from it; there are no bedsteads, for at night they roll themselves in thick cotton sheets and sleep on the floor, and neither are there windows or chimneys, for most of the cooking is done out of doors. When the rains do not allow this, Mavati's mother boils the rice or bakes the wheaten cakes at the fireplace, and the smoke floats about the room until it finds its way out at the door.

Mavati is clad in nothing but a cotton skirt reaching to his knees, for the rains are over and the hot season has begun. His father wears a white turban and a *dhoti*—a strip of fine cotton cloth wrapped round the waist and tucked up in front and behind. His mother has a long piece of blue cotton cloth called a *sari* draped about her body, with one end drawn over her head, and

when she goes out to the village well she veils her face with a corner of her sari. The baby brother wears no clothes at all. They are poor people, but happy and contented After many years of hard work Mavati's father has saved enough rupees to melt down into two large silver bangles which his wife proudly wears on her wrists.

Mavati's father labours on the land every day of the week. He has a wooden plough which scratches the earth as the harnessed buffalo drags it along. He also has a rough spade, fork and pick, and with these tools he digs the soil and grows his crops His day's work begins at sunrise, when he goes off to his field taking a little food with him. At midday his wife brings him his dinner After dinner he sleeps in the shade for two or three hours and then works until sunset.

Mavati's mother keeps the house clean, fetches water and gathers wood She milks the cow and goat, pounds the grain, grinds spices for curry powder, cooks the dinner and takes her husband's share in a pot to the field. After dinner she rests until the heat of noon has passed Then she works in the garden growing vegetables, or busies herself with weaving or sewing, and finally, at about eight o'clock, she prepares supper. After supper bedtime ends the day.

The village school.—As soon as the morning star appears in the sky Mavati gets up The priest of the temple in the village blows his holy shell to awaken the gods Numbers of men hurry down to the river to bathe The peasants set out for the fields, and with the sacred ash Mavati marks on his forehead the sign of his god, and then runs off to school It is an old school—a thatched mud building standing under a large tree The floor of the schoolroom is strewn with sand and at one end is a bank of sand covered with a reed mat. Hanging on the walls are thirty or forty bookcases made of two pieces of wood bound together with cord. The teacher sits on the sandbank, and every boy, as he enters, takes his work from the bookcase and sits down on the floor to learn his lessons He learns reading, writing and arithmetic, the way to compose a letter and also many wise proverbs and verses. At eight o'clock Mavati runs home to breakfast, and returns to school an hour later Then at noon he goes home to dinner, and three hours later returns for afternoon school which lasts until six o'clock.

The boys have two days' holiday at every new moon and every full moon, amounting to four days in a month, and for one week in each year they hold a school festival in honour of the goddess of learning On those occasions the boys wear their best robes and worship at the shrine of the goddess, afterwards going from house to house singing and reciting, and collecting money for a treat.

The school seems a very poor one to us, but it is only in recent years that the government of India has been able to begin modern teaching for children. The villages are so many in the vast country, and the people are so poor that only the very few could afford to have their sons taught But now wise plans have been made to give free schooling to all Cool white buildings are going up, trained teachers are sent to them, and there are gardens and proper equipment for most things you enjoy In the state of Bengal not one old school is left, so it is sure to be the turn of Mavati's village before long

The village people.—On the first morning of the holiday of the new moon, Mavati and several other schoolboys have arranged to meet in the plain and try a kite flying contest Mavati has a square green paper kite brightly decorated with yellow. He sets out early with his kite under his arm, and walks along the narrow village streets winding between the closely packed rows of huts Soon he passes a house with a high mud wall round it, entered by a gateway This house belongs to a farmer and is built round an open space inside the wall The house is of mud and thatch and has three

rooms in it—a large living room, a storehouse and a kitchen The living room is as bare as the one in Mavati's home excepting for a few bedsteads with bamboo frames joined by a network of grass fibres, and some bedding consisting of mats and pillows rolled up in a corner The storehouse is filled with grain, and in the kitchen are many brass and earthen pots for cooking, eating and holding water There are cattle sheds and barns close to the house, and a garden in which vegetables and kitchen herbs are growing

Mavati does not linger here, however. He goes on towards the village well, beyond which stands the house of the carpenter whose son is coming to the kite flying The well is a busy spot where women are always coming and going, laughing and talking as they fill their waterpots. Keeping their saris drawn like veils across their faces the women balance the jars of water on their heads and move away gracefully down the street.

The carpenter's son is in his father's shed working on a piece of wood with a tool something like an axe. He is a thin little fellow of eleven, but already uses his father's tools cleverly In India boys always follow their father's trades, and that is why Indian workmen are famous for their skill The cleverness of his forefathers has been handed down to the carpenter's son, and his workmanship is beautiful. The carpenter himself is making a new plough, and is wearing only his loincloth and turban Across his shoulders runs a thread showing that he belongs to one of the five great orders of workmen in India To the other orders belong the potter, the shoemaker, the weaver and the blacksmith. The carpenter is a busy man He makes bullock carts, bedsteads, doors, yokes, rafters, tool handles and wooden spoons At the time of the fair he builds a great wagon in which the idol is carried, and sometimes he carves a wooden image which is set up in the village temple He is paid for his work in money, food and household goods, and is very comfortably off

The carpenter's son has a large red and blue kite, and he now joins Mavati in the street The boys chatter and laugh merrily as they go on their way. They linger to look in at the blacksmith's shop and listen to the clang of his hammer The blacksmith does all the iron work of the village with no tools other than some hammers, pincers and a pair of bellows He makes spades, axes, reaping hooks, knives, locks and keys and a score of things besides There is always someone waiting for him to mend a broken tool or make a new one

Mavati and the carpenter's son now go on past the goldsmith's shop, from which comes a light tap-tap. The goldsmith is making a silver bangle for one of the villagers As the boys go by the little shop two women approach and speak to the goldsmith. One hands him a small bag of coins which she wishes him to make into an anklet, and the other has an old silver ornament to be melted down and remade into a fresh shape

Farther on they pass a man seated on the ground outside his hut while the barber trims his hair and beard. The barber has spread out a mat to sit on, and is telling the news from the bazaar in the town he has lately visited He has given his customer a small mirror to hold in his hand and watch the work while it is being done.

Here comes the *dhobi* or village washerman leading his donkey and followed by his wife and a small son The donkey is carrying a load of soiled garments and the dhobi also has a bundle on his shoulders. His wife collects the soiled clothes from the women of the house, holding them at the end of a hooked stick Their little son carries a large jar to hold the food which customers give them in part payment for their work The dhobi is going down to the river. There he dips the clothes in the water and beats them on a stone to shake out the dirt He then rinses and starches them and lays them out in the sun to dry Last of all he folds and packs them ready for their owners Sometimes he has two or

[*Reproduced by courtesy of Indian Railways Bureau*

INDIAN FAIR

three hundred garments to wash, none of which is marked, but he has his own plan of sorting, and never returns the wrong clothes to a family. He is a poor man, but at festivals he and his wife wear fine clothes because they put on garments which have been given them to wash. At a fair the dhobi may be dressed in the silk robe of a rich moneylender, and his wife in a sari belonging to a wealthy village lady. Nobody minds their doing this, so long as the clothes are carefully washed and taken back afterwards.

On the edge of the village stands the potter's house, and here Mavati and the carpenter's son call for another schoolboy with a kite His father, the potter, sits at the wheel outside his hut and rows of pots are ranged all round him on the ground There is a heap of wet clay by his side and pieces of broken earthenware are scattered about. Mavati watches the potter's brown fingers smoothing the clay while he spins the wheel with his foot. The pots are plain but graceful in shape, none ever looks ugly or clumsy. For thousands of years Indian potters have worked at their wheels shaping earthen vessels for cooking food, storing grain, holding water, keeping money, or carrying food to the fields The village potter also makes clay gods in the forms of men, birds or animals, and these are brightly painted and placed in the temple.

At last the boys arrive on the plain for their kite flying Each boy has rubbed the string of his kite with a substance which hardens it and gives it a sharp edge. Now all run across the plain letting out their

strings, while the kites lift in the breeze and gradually rise higher and higher in the sky When the kites are well up the boys battle with each other, rubbing string against string, each one trying to cut through his enemy's cord and so win the game Mavati matches his kite against that of the carpenter's son. Presently a shout from the other boys attracts their attention, and they see the potter's son, his broken string on the ground, watching his kite soar away and flutter downwards. He has lost in the contest. Mavati battles on with the carpenter's son, but both strings hold good, and after a while the hot sun makes them agree to put off victory to another day So they wind up the strings and draw their kites down to earth again. Then they go home to dinner and midday rest.

At sunset the mothers call their children indoors, in case wolves should be prowling around The herd of buffaloes is brought back from pasture in charge of a small boy who sits astride one of them, wielding a stick and shouting shrill commands which are slowly obeyed by the great, shaggy beasts When they reach the village street each buffalo goes off to his master's shed for the night. Now the cows and goats come in to be milked by the women and fastened in their sheds. Mavati's father returns from the field, and soon the family sits down on the floor to a supper of cakes served with curry and pickles The mother and children do not eat until the father has taken all he wants from the brass plates. Afterwards they share what is left, taking the food in their fingers

Mavati's father goes out after supper to the *chauk*, a kind of village inn kept by the headman Here the villagers meet under a tree in the hot season, and in the cool season they go inside. They smoke, chew betel nuts and chat about their crops. Sometimes strangers staying at the chauk for the night talk of the fair to which they may have been; or the village poet reads stories from Indian books At length the meeting ends and Mavati's father goes home to bed Mavati is already asleep He wakes in the night and hears the distant whine of jackals, followed by the yelping of the thin street dogs looking for food amongst the heaps of rubbish. He feels glad to be at home wrapped in his thick sheet, and is soon asleep again

TEACHING HINTS

1. Cobra.—The cobra reaches a length of from five to six feet. It can distend the neck to a very large size This variety of snake is numerous in India and other parts of south-east Asia It is poisonous

2. Cheetah.—This animal (see blackboard sketch) is also called the hunting leopard It is found only on the Deccan and is trained for hunting the antelope It has long limbs, rough hair and blunt claws which are only partially retractile

3. Bandicoot.—(See blackboard sketch) This is a loathsome animal of the rat family very common in parts of India It sometimes measures two feet in length, including the tail, and weighs three pounds It burrows under houses, and is very destructive to plants, fruit and poultry

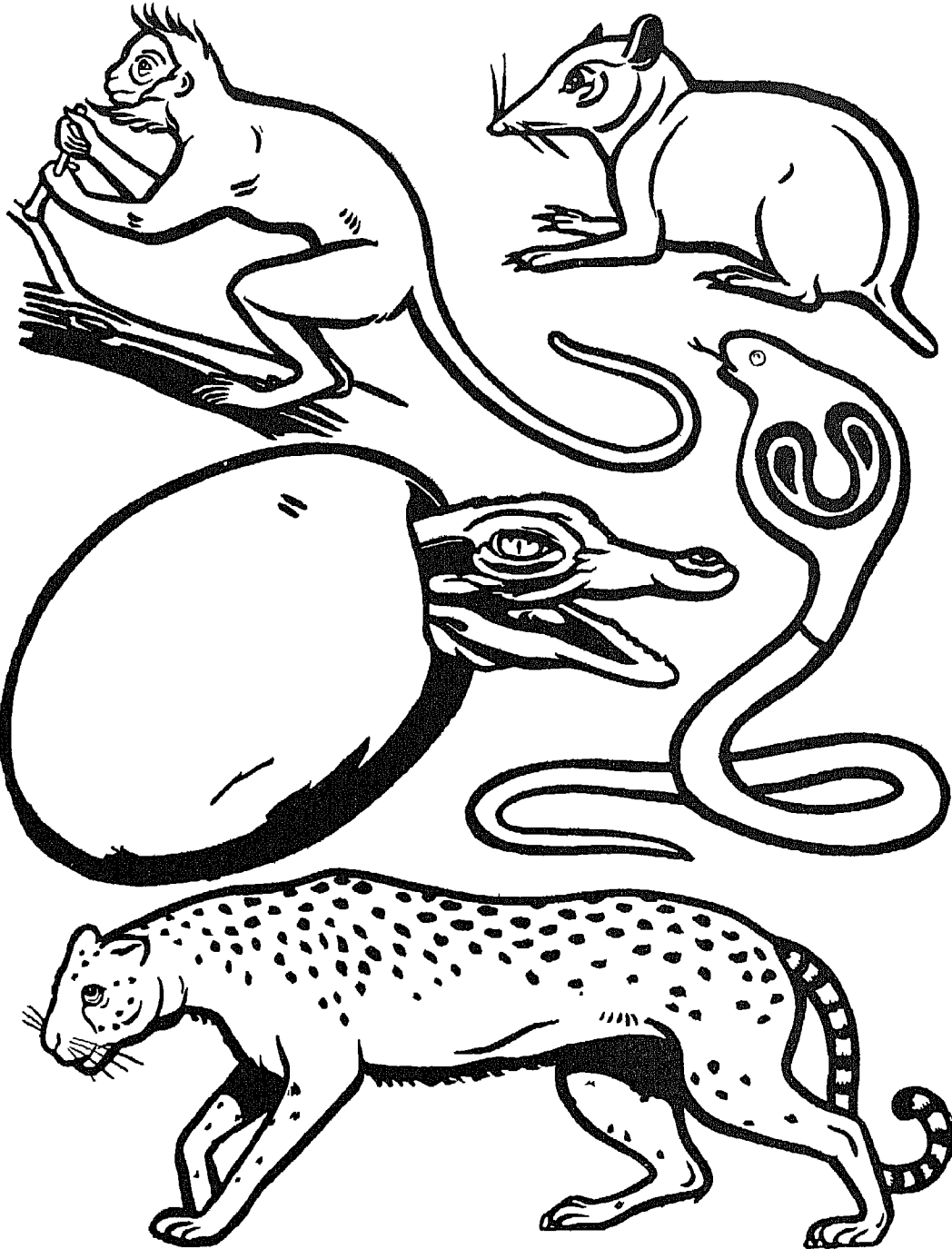
4. Memory work.—(*a*) Most of the people of India dwell in villages of small thatched houses. (*b*) The people dress in simple garments made of calico. (*c*) The peasant's wooden plough is drawn by a bullock or water buffalo (*d*) In the village schools the boys are taught to read, write and count. (*e*) In the village live a carpenter, blacksmith, potter, goldsmith, dhobi and often a shoemaker and weaver. (*f*) The Indians are clever workmen because the sons are always brought up to their fathers' trades.

SKETCHES FOR THE BLACKBOARD

INDIAN WITH WOODEN PLOUGH

RACING BULLOCK CART

A DINGHY, THE NATIVE PASSENGER AND LIVING BOAT OF INDIA

SKETCHES FOR THE BLACKBOARD

Monkey
Crocodile emerging from Egg
Bandicoot
Cobra
Cheetah or Hunting Leopard

XII. BURMA

PICTURE REFERENCE

A CLASS Picture suitable for this lesson is No 103 in the portfolio—Elephants Piling Teak in Burma

CHILDREN'S STORY

Rangoon.—Burma is a neighbour of India, and to reach it a traveller must take ship and sail eastwards across the Bay of Bengal to Rangoon, its largest seaport Rangoon harbour is formed by one of the many mouths of the river Irrawaddy The ship steams slowly up this river mouth, passing paddy fields and oil factories, where petrol from the Burmese oil fields is sent to be purified for the use of motor drivers all over the world Great rafts of teak are moored to the river banks, and through the mud elephants carry and drag heavy logs to the sawmills.

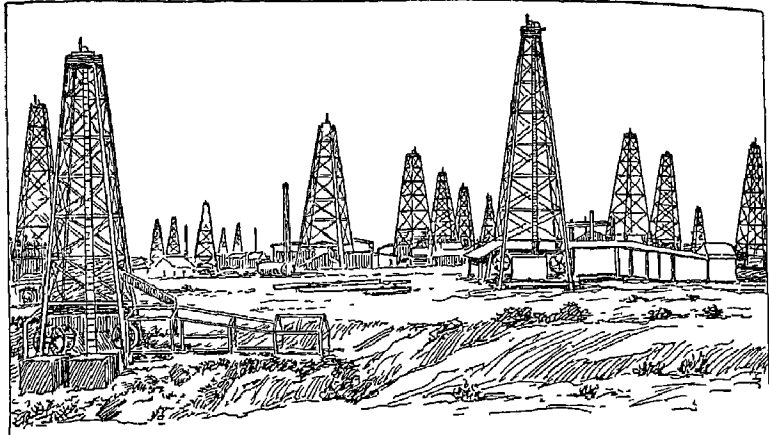
In two hours the ship arrives at Rangoon and is moored to a wooden quay. The harbour is crowded with shipping Twenty big cargo steamers from different countries lie at anchor, and swarms of ferry boats called *sampans* move swiftly backwards and forwards across the river Here are two paddy boats filled with rough grain in the husk They have come down the Irrawaddy bringing the paddy to the rice mills

Rangoon is a large city with wide streets and many fine shops and buildings The older houses are built of wood and the others of brick, painted white, with verandas, green window shutters and red tiled roofs White people wear *topees* or sun-helmets and carry umbrellas for shade from the glare of the sun People of all nations, drawn to this great port for purposes of trade, crowd the bazaars, where there are more Chinese and Indians than Burmans to be seen In the streets are water carriers whose red jars are slung from a bamboo pole held over the shoulder; hawkers with fans and sunshades; pedlars carrying baskets of vegetables, coconuts and melons, knives and mirrors, and porters bearing burdens from one warehouse to another Most of the traffic is done by bullock wagon Amongst the crowd are poor labourers, wealthy merchants, Indian policemen with large turbans, and dainty Burmese ladies Little naked children play in the gutters, and street dogs fight with crows amongst the heaps of rubbish Government officials work from an early hour of the morning in their offices, where fans are fixed to the ceilings and kept moving to cool the hot air. When office hours end they go home in their cars or carriages to wooden bungalows on the edge of the city The evening in Rangoon is the time for walking in the park and listening to the band, while the sun slowly sets behind the beautiful gold pagoda which is higher than St Paul's Cathedral in London.

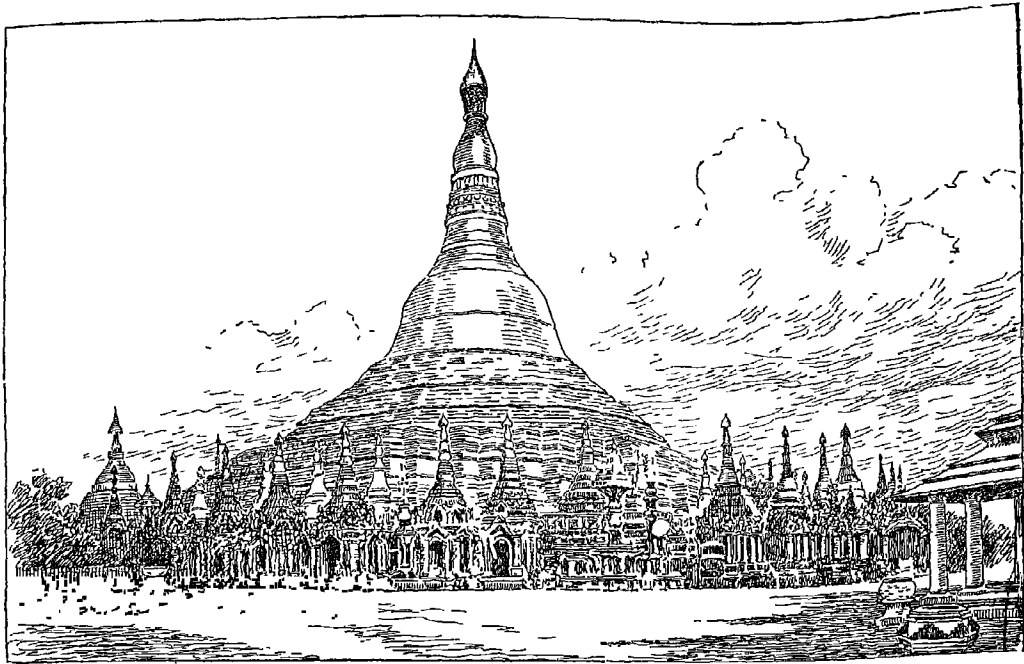
The Irrawaddy.—The Irrawaddy is the great highway in Burma, for railways are few. Numbers of steamers carry goods and passengers regularly between Rangoon, Mandalay and Bhamo, and thousands of native boats also trade up and down the river Most of the people of Burma live along the banks of the Irrawaddy, for the land beyond is dense forest in which tigers and other wild beasts live. All along the river may be seen towns and villages with pagodas rising above them The back parts of the steamers are often turned into travelling bazaars, and at the landing stages, crowds of people, chiefly women, board the ships, carrying

goods for sale and anxious to buy things that they need. Clothing, lamps, mirrors, eggs, flour, sweets and cooking pots are offered in return for oil, rice, handmade silks and baskets. The river flows between high banks of mud which are flooded in the rainy season. The villages are hidden amongst forest trees, palms and banana groves; behind them rises rocky ground covered with thick jungle Everywhere along the river are seen fishermen with nets, and enormous rafts of teak cut from the forest and drifting downstream with families living on them

OIL WELLS—BURMA

The Burmese people.—The weather in Burma is hot and damp and consequently the people are not energetic, but gentle and good-tempered Most of them are Buddhists or followers of Buddha, an Indian prince who gave up his throne to become a preacher, and taught men to be unselfish and kind to all living creatures. Burma has been called "The Land of Pagodas," for along the river banks, on the hills, and in every village pagodas have been built. The most famous is the Shwe Dagon or "Golden Temple" at Rangoon, which is so large and beautifully decorated that it is one of the wonders of the world. The pagodas generally have spires made of many roofs each smaller than the other and ending in a point From these roofs little bells swing and tinkle in the wind Near the pagoda is often built a Buddhist monastery where the priests live. It is made of teak, and stands on a platform raised from the ground upon thick posts. The priests teach the children and welcome pilgrims They shave their heads and wear yellow cotton robes Every day they visit in procession a number of houses, and food is put into their bowls

Burmese men wear short white jackets and skirts of coloured cloth reaching below the knee. Round their heads they wind bright silk scarfs The women also wear white coats and coloured skirts and carry dainty parasols. As a rule they go about bareheaded Their hair is a glossy black, carefully dressed with combs or flowers, and they are very fond of jewellery The people of Burma smoke from their childhood Men and women roll their own cigars, which are often eight inches long.

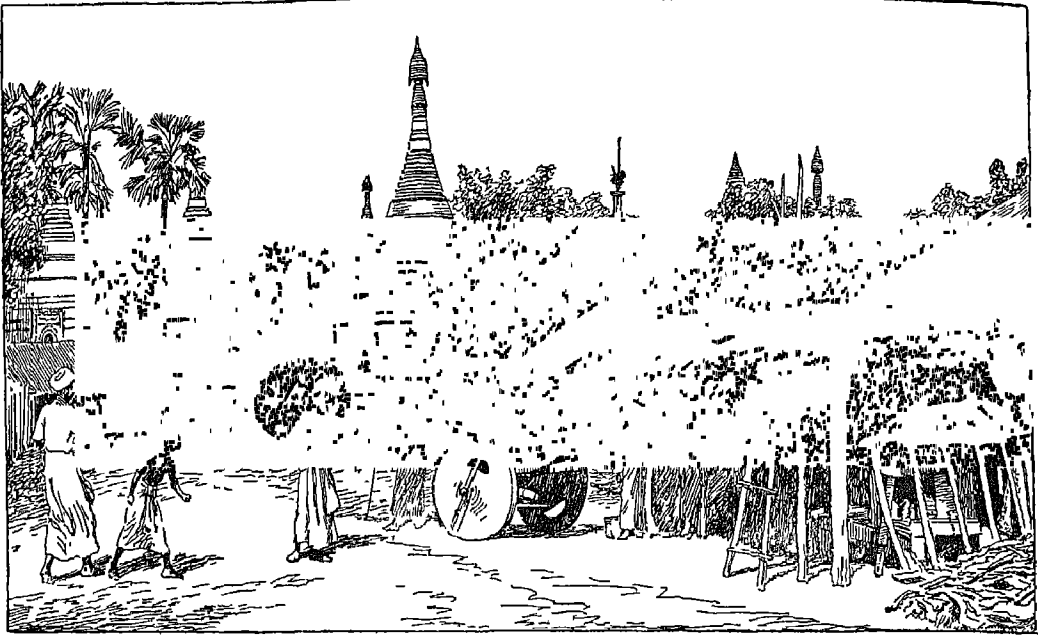
Village life.—Burmese villages consist of a number of huts often built inside a high fence of bamboo and thorn bush which keeps out thieves and wild beasts The heavy gates of this fence are closed at night and guarded by a man in a hut near at hand. The houses are built chiefly of bamboo, and many are raised high above the ground for safety from snakes or floods The spaces under them are used as stables for the cattle The walls are of bamboo matting and the roofs thatched with elephant grass The front of each house is open, showing the sleeping mats, cooking pots and jars of drinking water which are all the furniture that the people need

The villagers rise with the sun and most

SHWE DAGON PAGODA

One of the greatest pilgrimage shrines to Buddhism, rising to a height of 370 feet, and magnificently gilded

of them go out to work in the paddy fields, for rice is their chief food Others work in the village at mat and basket making or silk weaving, and bullocks turn the oil and sugar mills. The children now go to a government school, and when they are old enough boys mind cattle or work on the boats, and girls cut firewood from the jungle and collect from the forest pools oil for their lamps. Fowls, cattle and pigs wander about the village, as well as wild street dogs At sunset the tired bullocks walk home with their creaking carts, and the villagers sit down to a supper of rice or fish. When the silver voices of the monastery gongs sound, the village gate is closed and all go to bed

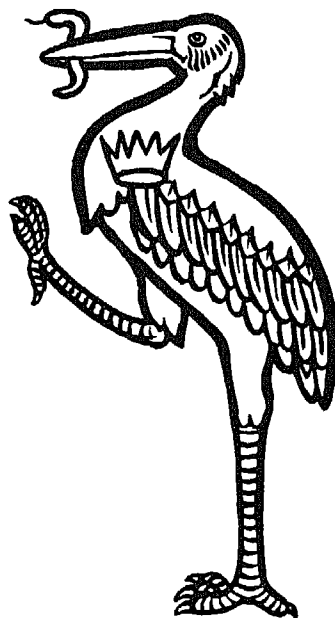
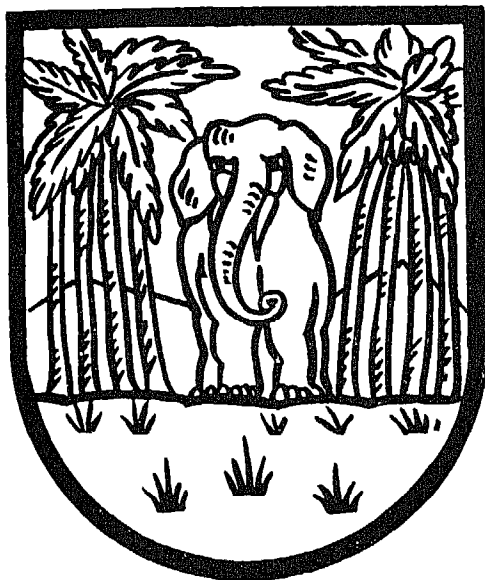
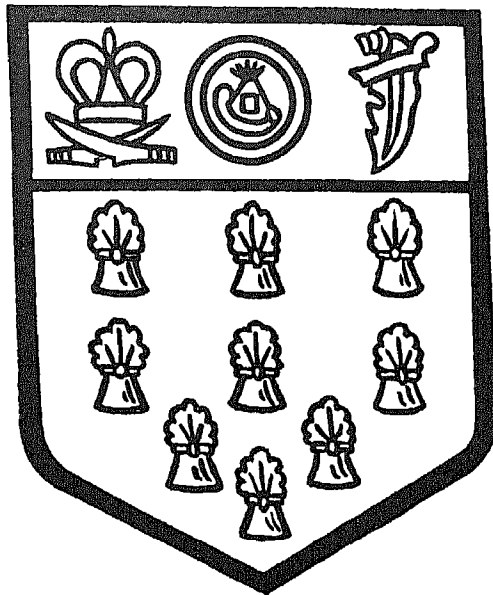
BURMESE CIGAR MAKERS

Town life.—The old capital of Burma is Mandalay, which is surrounded by a moat instead of a fence It has wide streets shaded by trees, and the people dress very smartly. In the centre stands the fort

A Burmese Village Scene

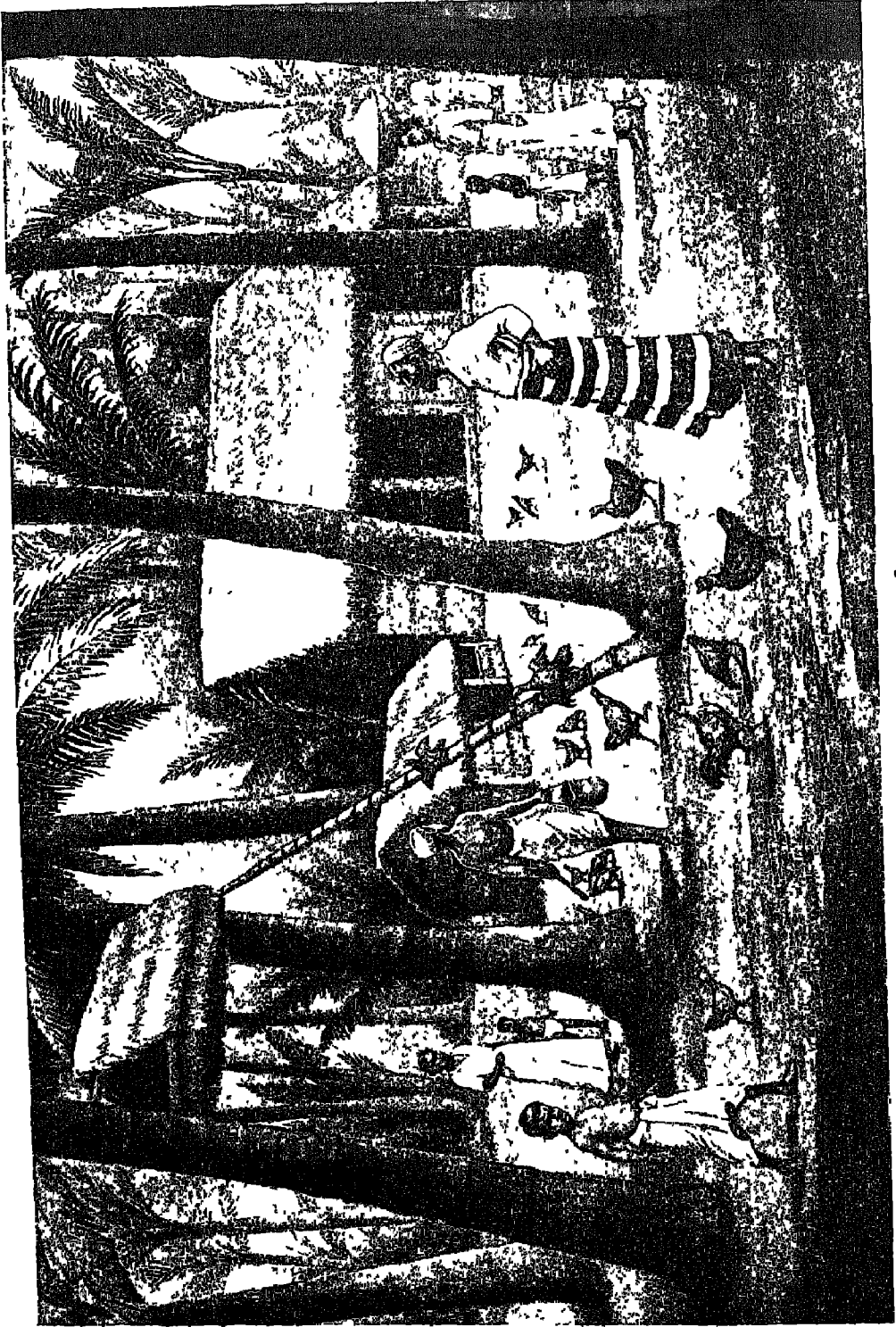
which has a high square wall all round it, inside which is the palace where the kings of Burma once lived The palace is made of carved wood decorated with gilt and coloured glass in a most unusual way Many beautiful pagodas and monasteries may be seen in the city. The houses are built of teak, and the people fetch their drinking water from the moat, which is not very clean although it looks pretty when its water lilies and purple lotus flowers are out

The other towns of Burma are like the villages excepting that they are larger. They are protected by ditches of water instead of fences, and the ditches are crossed by many little bridges There are small bazaars, down the streets of which pass many bullock carts with large wheels placed wide apart for safety in travelling over the rough roads The shops are open and workmen may be seen making umbrellas and sunshades, weaving silk, carving wood and doing silverwork. In many streets are wells and pagodas, and once a week markets are held at the largest towns to which Chinese, Indians and hillmen go, as well as all the Burmans from the district around.

The forest.—In the jungle immense trees grow above a tangled mass of bushes and creepers Teak trees with large leaves, indiarubber trees, bamboo and banana groves are found. Monkeys and parrots live in the tree tops, wild elephants roam about; tigers, panthers, bears, deer, wild pigs and snakes are seen People travel through the forest on elephants or ponies, and sleep in wooden bungalows put up by the government for inspectors who make visits to see that no one has been felling the trees without permission In many parts teak cutters are at work, with elephants hauling logs or loading them on to trolleys which run down to the water The teak trees shed their leaves in the hot season and put out new ones during the rains. The rainy season is the busiest in the jungle, for then all the rivers are full Logs cut in the hot weather are now tied into rafts and floated to the sawmills at Rangoon

SKETCHES FOR THE BLACKBOARD

PUBLIC ARMS

BURMA
CEYLON

MALAY STATES (SHEAVES OF PADDY)
A SUPPORTER OF THE ARMS OF CALCUTTA (ADJUTANT BIRD)

A Fisher's Homestead in Ceylon

PRACTICAL GEOGRAPHY

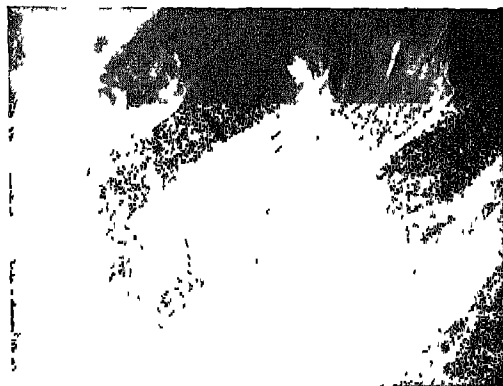
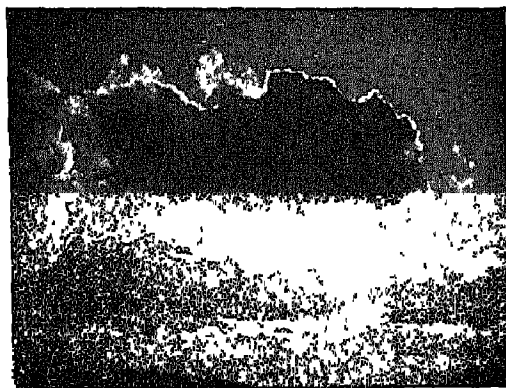
1. WEATHER STUDY—RAINFALL

Aim.—To direct the children's attention to the daily changes in the weather, with special reference to rainfall.

Method.—Introduce a class talk on the scenes noticed on any rainy day, leading to a collection of information concerning cloudiness, stream level, and apparent effects of rain on soils With the children's co-operation contrast the conditions on a showery day, asking the class questions referring to the colour, size, and relative height of the clouds. As the lesson proceeds make blackboard sketches, or show pictures, of the chief cloud forms· "Mares' Tails" —cirrus, cumulus, cumulo-nimbus and stratus

The signs of rain on the soil will repay examination. If these have not been noticed with sufficient attention by the children, then a few points to be observed should be mentioned Ask the children to trace the channels on the steep slopes and follow these to the level surface What can be seen where the channel ends on the level surface? (Fine grains of rock) If this sediment can be seen on the pavement, its transportation from a higher adjacent soil is more evident. As the lesson proceeds build up a blackboard summary of the observations, keeping the left side of the board for scenes on wet days Continue the consideration of signs, treating now the effect of rainfall on local streams, the water level at the reservoir, the marshes, and the moorlands.

The common sights associated with drought may be considered in the same way. Supplement the information which can be obtained from the class with personal knowledge of local evidence It is well to remember that

Cumulo Nimbus

"Mares' Tails"—Cirrus

Cumulus

TYPES OF CLOUDS

(From photographs by Mr G A Clarke, Aberdeen)

there should be the injunction, "Look at —— next time you pass, then tell me what you noticed"

Tabulate the facts collected in a vertical column on the blackboard.

If the school is situated amidst rural surroundings the obvious control of labour by rainfall may be regarded, for example, hoeing in the dry season, the preparation of drainage channels, the clearing of dykes in readiness for the wet days, the threshing and barn work done during the wet days

If there is a school garden, the children will fully realise how the weather conditions affect their work in it,—the preparation of the soil, the sowing of seeds, the best time for weeding, hoeing and the storage of crops The children should be encouraged to observe and describe the work of their fathers in their own gardens or allotments

Teaching hints.—This lesson may be taken as the co-ordinating stage of a series of minor topical studies which have been directed from time to time by the teacher Try to make real to the children the effects of rain and drought on their immediate surroundings, so that a simple basis for the comparison with conditions abroad may be formed The blackboard sketch on page 621 will be useful here. The outline of an eastern house shows how water is collected inside a house situated in a dry country The outline of an English house shows how water is collected outside in a wet country. The smallest garden in front of the town cottage will reveal some features which show the importance of rainfall, and which suggest ideas of the need for artificial means of supplying moisture during times of drought Some points may safely be left for the children to investigate themselves after the teacher has given the introductory talk, while others may require the personal help of the teacher to supervise the observation The summary, which should be made during this lesson, may profitably be retained for reference, therefore the use of stout brown paper will ensure a summary suitable for occasional examination. While every teacher will have strict regard to the local surroundings and the evidence of weather changes on them, it should be the aim to record clearly the signs which the children can appreciate. The following copy of such a summary will indicate the details incorporated and a method of arrangement.

Study near Talsarn

Blackboard Summary.—

Wet Days	*Showery Days*	*Drought*
1 Low clouds, grey and shapeless.	Light high clouds with lower darker clouds which bring showers	Clear sky Brilliant sunshine
2. Swift streamlets, muddy appearance Gutters filled with rushing water.	Signs of soil carried from soil to pavement.	Driedstream channels Low level of river
3. Saturated soil. Muddy tracks	Pools in country lanes.	Cracks in soil surface. Hard roads Dusty roads
4. Outdoor labour stopped	Cleaning drains on the farm	Hoeing done on the farm.
5 Grasses freshen Growing seeds sprout. Growing crops may be damaged.	Plants are cleaned and grow stronger	Plants turn yellow or wither.

Notes on clouds.—When large masses of air are cooled sufficiently, water vapour is changed to liquid or condensed to water, and clouds are formed. The drops of water are at first too small to fall as rain, but as further cooling and consequent condensation proceed, the drops become larger and eventually fall. Air is cooled by its rising upwards; such ascending air reaches altitudes where the pressure is reduced and it expands. When any gas expands heat is absorbed and the temperature falls. Any cause which deflects air upwards leads to its being cooled by expansion, and this explains why mountain ranges are generally the places where there are heavy falls of rain or snow.

Ascent of air is the main cause of cloud formation and of rain The highest clouds, at an altitude of about six or seven miles, appear as white feathery masses known as *cirrus* These are composed of ice particles, since at that height the temperature is below freezing point.

In summer we often see great white billowy clouds called *cumulus*, and these may either slowly disappear or develop into darker clouds called *cumulo-nimbus*, almost black at the base and usually associated with thunderstorms and heavy falls of rain. The basal parts of clouds of this type are roughly at a height of three-quarters of a mile, though the upper whiter portions may extend to three miles. At greater heights a combination of cirrus and cumulus occur, and these are rather curved white clouds, sometimes producing the appearance of "mackerel sky." The long low-lying clouds often seen at sunset in summer are called *stratus*.

STORY

Our Farm

Every year the farmer and his labourers have the same round of busy life doing the various tasks which each season brings. Sometimes, as in the hay or harvest season, extra help is required on the farm so that the work may be completed in as short a time as possible while the sun is shining Work on the farm has not been easy this year Besides the busy season of harvest we have this year had extra work to do· the drainage has been improved, the hedgerows have been strengthened, and wells have been dug. All these tasks have been necessary because during the spring the rainfall was very much greater than usual, and in autumn there was a long period during which no rain fell

The farm is a large one compared with other farms in the county Within its 700 acres are the low, flat lands over which the river winds in great loops. The gentle slopes rise from the riverside meadows, and the higher lands have steep slopes and wild, rugged summits.

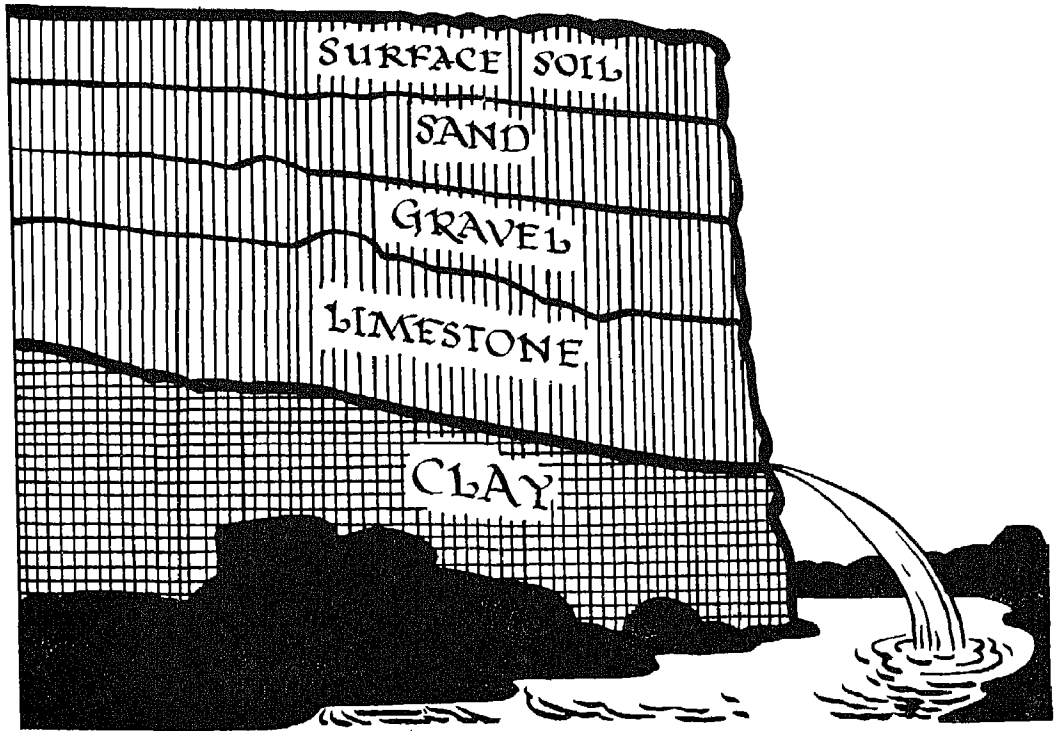
Our work is of the kind called mixed farming, that is, the keeping of cattle, sheep and pigs and the cultivation of crops. By doing both types of farm work we are able to use all the land on the farm. On the higher parts the sheep graze. Here the thin, short grasses of winter and the dried, yellow pasturage of summer provide food for these hardy animals which can nibble the scanty covering of stunted grass. The lowest land along the riverside is covered with the long, lush grass on which the cattle thrive so well. If you have watched the cows grazing in the fields, you will have noticed how they break the long blades of grass when they twist their tongue around a mouthful. They do not leave the meadow close-cropped, but they take that which is most juicy and nourishing, finding that the full grass is a delicious food, much more appetising than the fodder of hay and roots which is put into their stalls in winter. The rest of the farm which is on the gentle slopes between the grazing lands is cultivated for potatoes, turnips, mangolds, cabbages and other root crops, as well as for wheat, oats and barley

These different sections of the farm have different appearances and need attention of a special kind In wet weather, the flat parts of the summit, where the water cannot drain away, become sodden and boggy, but during the warm, dry days of summer the surface water is soon evaporated, the soil becomes parched, and the pale, short grass thins into a patchy covering on the hill top. On the steep slopes the swift, narrow streamlets, often broken by cascades, descend in their narrow channels to where they meet at the foot of the slope. From this supply of water we obtain as much as we can for our use during the dry weather by sinking wells near to the streamlet course We have now seven of these tiny reserves, each of which is covered and secured with a lock, as well as being enclosed by a fence. These should hold sufficient water to supply our herds during several weeks of dry weather.

Most of our time is spent on the agricultural land, where the drainage channels have to be kept open. After heavy rainfall the ditches must be inspected so that the flow of water may be seen, and if anything is obstructing the channels it must be cleared away Sometimes, too, the farmer will notice that pools are forming on the land, and he makes plans to have a drain made from that part to the ditch. Here, too, the boundary hedges, fences, or walls of the field must be kept in good repair in order to keep out the grazing animals; and the best time for such work is in the intervals between the more important work of cultivating Near the roots of certain crops the soil is broken up during the long spells of dry weather. This work, called hoeing, is done to allow air to reach the roots through the loosened soil and to prevent the water below from being evaporated too quickly.

In the wet season the river rises over its banks and floods the lower meadows of the farm, changing the appearance of these into a large pond. The water disappears slowly when the river falls to its usual level, leaving behind a covering of silt which lies spread over the whole of the flooded land. Farming is delightful work. There is always something new to see and to do.

USEFUL PRACTICAL WORK

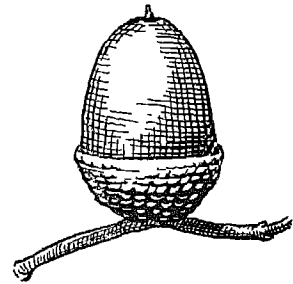
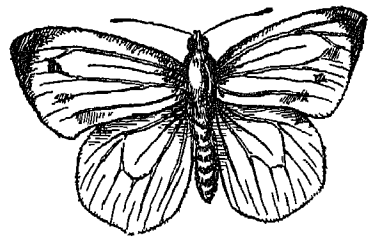
1. A rain gauge.—A drawing of a simple rain gauge is given on page 637 The essentials are (*a*) a glass funnel to catch the rain which falls into a jar, and (*b*) a graduated measuring glass. The funnel and jar should if possible be enclosed in a metal pot to prevent evaporation If a set of apparatus is purchased it is advisable to buy a set of the Snowden pattern, but useful apparatus

How rain water is collected inside the house in a dry land and outside the house in a wet land.

HOW A SPRING IS FORMED

for the use of young children can be prepared from a glass funnel, a jam jar and a round medicine bottle. The medicine bottle can be graduated by trial with strips of paper stuck on the outside of it to mark fractions of an inch.

2. Sketching.—It is of much value to children to let them sketch with pen, pencil or brush whenever the opportunity occurs The talk on the farm lends itself admirably to sketching. Let the children draw from observation or memory anything they wish to depict of nature during the varying seasons For instance a crocus flower for spring, a butterfly for summer, an acorn for autumn and resting buds for winter Let the children make their own choice of objects to draw, collect the drawings from the class, cut them out and mount them on brown or other coloured paper under the headings of spring, summer, autumn or winter.

CHESTNUT BUD

CROCUS

ACORN

BUTTERFLY

2. WEATHER STUDY—TEMPERATURE

Aim.—To interest the children in the daily changes of temperature

Method.—Introduce a class discussion on the scenes and personal feelings which are characteristic of a warm day. Let the aspects be as varied as possible within the experience of the children. The points which most readily occur to the class will probably be with reference to personal feelings—the change of games, changes in wearing apparel, indifference to work. Cloudless skies, and the greater elevation of the sun are points which may occur during the discussion Proceed to a consideration of the scenes associated with cooler days. Mention the points which will bring out contrasts with what has previously been discussed, and tabulate answers in a suitable blackboard summary. Lead to a talk about the personal feelings and scenes during the cool days of spring and autumn, when clouds cause more sudden and striking daily variations Ask the children questions which will bring out the importance of cloudiness in temperature control, e g. what changes do you feel

when you are in the shadow of a cloud? What difference do you feel when the cloud has passed away? With a bright class the work may proceed to an enquiry into the coldest nights of winter. The morning signs of frost and their association with the clear skies of the previous night are points which will repay attention.

Typical Native Shack—Panama

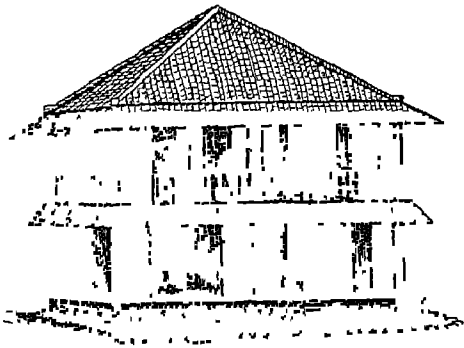
Seasonal work on the farm, as well as the changes in vegetation and vegetative growth, may well form an extension of the work These will include the appearance of buds with the beginning of warmer days; the ripening of cereals in the long, sunny days of summer, and the destructive power of frosts in the orchard. In the town, too, obvious signs of the effect of temperature changes may be seen—the interference with transport caused by a snowfall, the bursting of water pipes, the use of overcoats and furs.

Hints.—Points to remember in this lesson are that the children should form associations between temperature and (*a*) the sun's altitude, (*b*) cloudiness Keep to the differences which you consider sufficiently marked to be appreciated with ease by the children. It will be found advisable to make broad classifications into *cold, cool* and *warm* periods The vernal and autumnal seasons will be found most suitable for the illustration of cloud effects, these can be appreciated by a few minutes spent in the open when clouds are passing Tabulate the points in a way which will bring out the significance of the two main conditions with which we are here concerned The following plan indicates a method which may be followed·

	Conditions		**Results**	
	Sun	*Sky*	*Temperature*	*Scenes*
1	High	Blue or cloudless	Warm	
2	High	Cloudy	Cool	
3.	Low	Blue	Cool	
4	Low	Cloudy	Cold	

Pictures.—After the talks with the children they will be interested to look at pictures depicting scenes in different parts of the

world, where the houses and dress of the people are adapted to different climatic conditions Many such illustrations will be found in the portfolio. The picture of a native shack in Panama shows how the building is adapted for coolness. The air can get under the house, and the veranda offers grateful shade. The clothing of the people consists of light cotton garments.

Draw a blackboard sketch of this Japanese house which admirably illustrates how the building is kept cool in hot weather. The Japanese man with the straw raincoat will also be useful as a blackboard illustration

A Japanese House

STORY

We have all felt the sudden changes of temperature on a spring day as we have walked along the lanes or played in the park. Many of us may have found the cause of these changes We have probably felt the warmth of the sun's rays so soon as they reached us, and then a few minutes later, we have felt a slight chill as a cloud moved overhead and obstructed the rays of sunshine and threw its shadow around us. Sometimes, at this season of the year, the sun shines brilliantly from a deep blue sky, throwing a clear light on all the scenery, and giving to objects a dark, well-marked shadow You may have noticed, if you have been indoors, that the sun throws a sunlit space into the room through the southern window. If you have felt these rays of sunshine as you were sitting near the window you will have noticed that they do really feel warm, that they bring colour to your skin, and that things on which the sun shines become warm. Then, suddenly, the light patch vanishes and the whole surroundings are thrown into shadow and gloom The warmth-giving rays have been shut out by the thick cloud which has moved across the sky. What a great difference this cloud has made! In two ways it has affected us: firstly, it has made things look dull and less distinct than they usually appear in the daytime, and secondly, what is of much greater importance, the passing cloud has made the temperature lower Perhaps, even while you are in the shade, you can see in the distance the brightness that is beyond the cloud's shadow. Away over the meadows, are the brighter green stretches, broken in places by dark patches where the shadows of other clouds fall on the land This season of spring is a time of change Now the sky is overcast, then it is clear; at one moment rain is falling, the next it is fine and dry. Even the hedgerow seems to change as it is thrown in the shade or receives the sunshine.

Japanese with Straw Rain Coat

When summer comes there are fewer sudden changes. We notice the sun nearly overhead at midday, the higher temperature, and the clear sky The clouds which we do see on the bright, warm days of summer are high, thin streaks moving slowly across the sky without casting any shadows. These do not prevent the rays of sunshine from reaching us or from reaching the earth This is the time when we like to be out of doors, enjoying the warmth and sunshine, playing our summer games, spending a holiday at the seaside, or walking in the country amongst the flowers In May, though we cannot be

certain that the warm, summer weather begins then, we give up the hard, winter games such as football, hockey and netball, and start playing games in which there is less strain. We begin to wear lighter clothing and leave off the coats and gloves which were so useful in December Especially in the big towns a long way from the coast such changes from winter to summer are noticeable. The people who are compelled to work in these inland towns go for their holidays to the seaside, where they find the cool sea breezes a pleasant change from the warm, still air of the inland places Sometimes, the long, summer days are disturbed by the appearance of a low, dark cloud. This is a well-known sign to all of us, and if we have not already had warning by the sound of thunder, we think of the rain which the coming cloud brings

The scenes and experiences of winter are well known to everybody. In England, although the difference between the winter and the summer temperature is not so great as it is in some countries, there is a change which is sufficient to make us alter our way of life a little If we have been observant, we shall have noticed several things concerning the sun's appearance and the temperature. The sun appears later and the days are shorter. We have not to look high in the sky for the sun at midday in winter. Sometimes, when it is very cold, the ponds and reservoirs are frozen, and in the fine, cloudless evenings people enjoy skating in the crisp, dry air. At times, too, we may see the low heap cloud which darkens the winter day and brings with it the falling snow. Our games are now the fast and strenuous exercises in which there is plenty of hard work and movement Football for boys and hockey for girls are games which are enjoyable because they enable us to play in the open, at the coldest time of the year, without feeling the cold air too severe. How many of us have noticed how this cold season affects the plants and trees? That depends, perhaps, on whether we live in the country or not. But, even in the city parks, we can observe that the trees show signs of resting during winter,

ON THE BANBURY-OXFORD ROAD

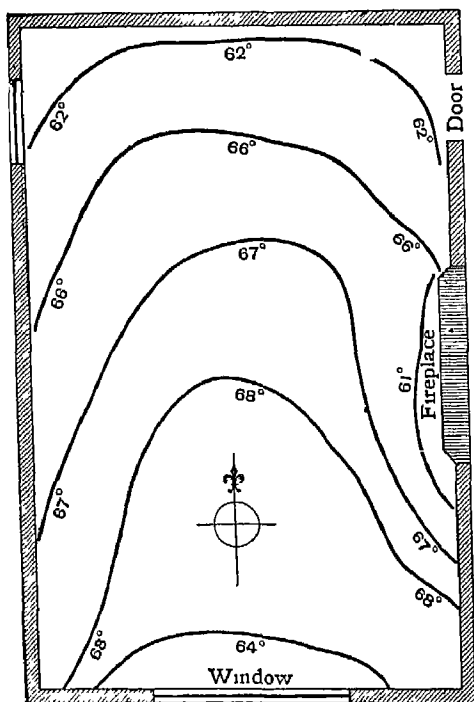
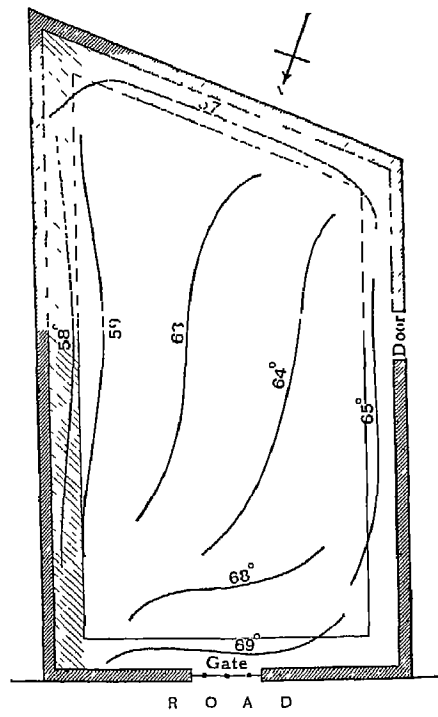
the grass appears to grow less thickly and without the fresh green hue which it has at other seasons Another feature of our British winter which many of us are not able to observe closely is the difference in the numbers and kinds of birds owing to the changed conditions From the south of France, from Spain, and even from Africa, birds visit our island in the summer, and remain here until September, when they return again to the southern places before the cold weather begins in England

USEFUL PRACTICAL WORK

Taking temperatures in a classroom.—Draw on a sheet of card a simple outline plan of the classroom and let the children take the temperatures in various parts of the room This will take some time, as the thermometer must be left for about five minutes in each selected situation. If several thermometers can be used at the same time the work will be much simplified. The temperatures of the playground and garden can be similarly recorded.

3. WEATHER STUDY—CLOUD FORMS

Aim.—To teach children something about the main forms of cloud and the conditions which we can generally associate with them.

Method.—Have on view the pictures or diagrams of cloud forms which were shown in a previous lesson Revise the work that has already been done on this subject. Ask the children to name the chief types of cloud, giving a brief description of each. Examine, in turn, the main features of the types. Try to make the class recall a day on which each of these types of cloud was to be seen To their general ideas of the

Taking Temperatures in a Classroom

Taking Temperatures in a Garden

clouds on that day add your own description of the cloud forms that were to be seen Complete the "sky picture" with suitable references to the size, movement and colour of the clouds As you proceed, let the children mention the associated conditions There should not be much hesitation in their describing the sights and experiences which accompany the appearance of the major cloud types, and a summary of these should be made as the lesson continues Ask the children to think about the nimbus clouds (which the teacher will point out). What do you expect when you see these clouds approaching? (thunder, rain) Do these clouds bring long rainy periods? (No) How can you describe the rainfall which they bring? (Short, heavy showers) Are they low clouds? What can you see if one breaks? (The light, high cirrus clouds)

PEOPLE WHO LIVE IN THE CLOUDS
Water Carriers of Quito, Ecuador

Consider the cirrus clouds in the same way Make reference to the great altitude of this type, its thin feathery form, its whiteness, and its composition of small crystals of ice In contrast with the previous type this may be associated with calm, sunny days when the cirrus cloud appears in its general fibrous structure Do these clouds cast a shadow? Do they make any difference to the temperature? Can we see the sun through these clouds?

Examine carefully the picture of the cumulus cloud. Why is this kind of cloud often called "wool pack"? Contrast the upper and the lower sides What do you notice? (The base is horizontal, the sides and the top are rounded) Do these clouds throw a shadow? Do they always bring rain? Do they come from a certain direction? In which way do they generally move?

Treat the stratus cloud similarly Notice that it is the lowest type Often it can be seen on the hillsides, completely hiding the summits It is like a fog which has been raised above the tops of high buildings

The blackboard summary might appear in the following form, unless it is considered desirable to arrange the clouds in the order in which they were considered in class·

Blackboard Summary.—

Name of Cloud	*Height*	*Kind*
Cirrus	Over 5 Miles (Equal to the distance from here to X.)	Delicate appearance, threadlike structure and featherlike form composed of ice crystals
Cumulus	1 mile	Like a pack of wool.
Nimbus	Varies	Dark appearance, dense mass White sheets of higher clouds in openings. Steady fall of rain.
Stratus	Lowest cloud	Long horizontal sheet Often seen at sunset

Hints.—The classification of clouds into types should be arranged on a broad basis Try to keep within the capabilities of the children, remembering that we are concerned chiefly with cloud effects and not with classification *in* itself

Some of the proverbs referring to weather might be given in this lesson. Leave to the class the consideration as to whether they are reliable:

"The higher the cloud, the finer the weather"

"If woolly fleeces spread the heavenly way,
Be sure no rain disturbs the summer day."

"A round-topped cloud, with flattened base,
Carries rainfall in its face"

Try to find out the different effects on temperature made by the various cloud forms Notice how the heap cloud (cumulus) may cause an appreciable difference when it moves overhead, and the general experience of a cool day when a thick sheet cloud (stratus) remains overhead, throwing its shadow on the district all day.

If we "pool" our experiences, finding they are similar, then we can record this information as a working hypothesis This we can attempt to verify when we make use of recorded fact.

STORY

Let us imagine that we are making an aerial trip from London to Carlisle on one of the aeroplanes which can cover the distance in an hour or so Our flight is on a day in May, when the sky is almost clear of cloud and haze, the ground is dry and firm, and the air is warm. At about 2 p m. we take our seats in the cabin next to a window The sun is shining brilliantly, and we feel pleased at the thought that we shall soon be rising from the dry earth on this warm day to ascend into the clear air where we know it must be much cooler. As the aeroplane soars from the landing ground. we see the buildings and roads beneath. How different they look from their appearance only a few minutes before as we drove along the road in the car. How clear the roads now seem to be. The wide main roads stretch like broad, white ribbons between the dark patches of buildings, the whole mass seems to vanish below as we climb to the height our pilot thinks suitable Soon we begin to understand why our pilot advised us to wear our coats, and also why he wears close-fitting, well-buttoned overalls, and long thick gloves The breeze we felt as we sat in the open car travelling at thirty miles an hour was quite cooling, and we had thought it a sudden and a pleasant relief from the close and stuffy air when walking in the street, now, however, we are beginning to feel that height makes a great difference to temperature

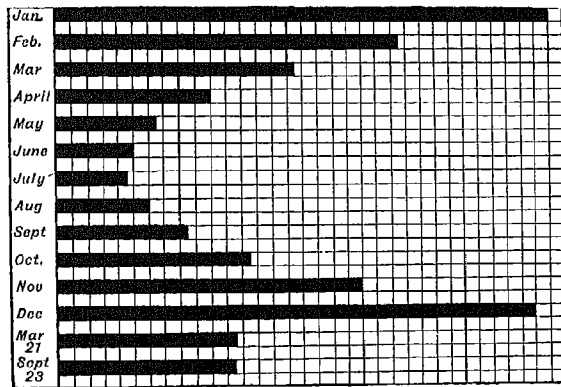
Now that we are settled comfortably and have seen the changes beneath us as we passed over town and country, our interest may turn to the sky Above us, appearing to be as far away as they do from the ground, the light feathery "Mares' Tails" can be seen. These thin sheets of cloud, moving, as we imagine, very slowly across the sky, generally at a height of five or six miles from the earth, are in air which has a lower temperature than that in which we are flying. The air above us is very cold, while below us, on the ground, we know that it is warm. Perhaps you will wonder how we know it is so much colder at the great heights to which these clouds ascend. One method of finding out is to attach specially made thermometers to small balloons which will rise to great heights In time, the ascent of the balloons is stopped because they burst The thermometers drop to the ground, still showing the temperature of the upper air to which they were carried We know from these experiments that those high cirrus clouds, so often seen by us when we are feeling the warm sunshine, are formed of tiny crystals of ice These patches of white, with edges of transparent thinness are too high to interfere with our flight. They do not affect our pilot, who keeps the

aeroplane directly on its course, at the same altitude, by use of the compass and by checking his bearings by the familiar objects which he recognises below.

Soon our peaceful flight is disturbed. Ahead we see what appears to be a high, white wall, rising in front of us. We have been flying at a height of 4,000 feet, but this our pilot now reduces to 3,000 feet, so as to pass under the cloud. What a change we see below us as we pass beneath the cloud! Before, the patches of light green and dark green, the light soils and the clear, almost white, tracks had shown distinctly, now, beneath us is quite a different scene. In the gloom and shadow we can see the black, shiny surface of the roads, for here it is raining heavily. A few minutes' flying takes us beyond the edge of the thick heap of cloud and again we are in the sunshine

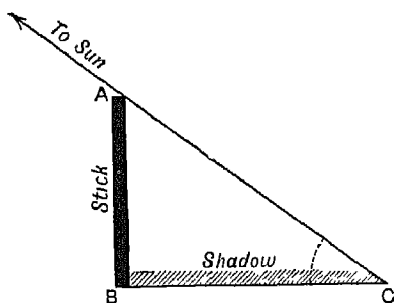
Ahead we can see the Pennines. Now we are flying at a greater height as there is no cloud above which prevents our rising, and it is the pilot's plan to cross the range at a great altitude. Beneath us are the highest points of the Pennine Chain, but how indistinct they appear We should think that the land was flat, if it were not for the light and dark points These are the shadows on the east side of the summits, making the land look like the roof of a house, one side of which looks lighter because it is in the sunshine, while the other appears to be dark because it is in the shade. On the western side of the range we notice another change The land below becomes hazy and indistinct. Tracks are less clear. Then the whole of the land is hidden from view. We are flying above a low cloud which extends like a great sheet over the land as far as we can see At intervals we observe dark masses breaking through the grey mist and showing like low rocks above a calm sea. These are the highest points in the Lake mountains and in the Shap district away to the west. How strange the scene appears, but it brings to us thoughts which we have never had before. The land is almost hidden from us. What must it be like below us on the land we cannot see? No doubt it is gloomy and probably it is raining in one of those long, steady downpours which we expect when low, nimbus clouds are overhead. There are no openings in the clouds through which we can see the landmarks, therefore our pilot finds that it is more difficult to navigate the aeroplane. Now he is depending chiefly on directions by radio, for the white mass beneath us still hides the land below Soon we must descend to find the landing ground which is not far ahead, and gradually the machine approaches the clouds For a minute we seem to be passing through fog, we are unable to see more than a few feet ahead, and we plunge through to the clear air once more about five hundred feet above Carlisle.

USEFUL PRACTICAL WORK

1. Shadow records.—Plant a stick upright in the playground or garden. Measure the length of its shadow at the same hour on the first day of each month of the year. Record the results on squared paper Note in what

A Shadow Record

months the shadows (*a*) are nearly equal in length, (*b*) are shortest, (*c*) are longest.

Watch where the sun leaves or shines on a part of the school every day, and make a mark at the point daily Join the points and note the dates.

2. Angular height of the sun.—Make a drawing to scale of the stick and shadow With a protractor measure the angle A C B and so find the angular height of the sun above the horizon. Do this experiment on several days throughout the year, and keep a record of the angles Find the angular height of the sun above the horizon at 9 a m, at noon, and at 4 p m

FINDING THE ANGULAR HEIGHT OF THE SUN

4. WEATHER STUDY—CHARTS

Aim.—To teach the children to read and to use the data recorded on the weather chart.

Method.—Have the various charts which were compiled during the month or period in a prominent position before the class. Ask the children to notice the records of different phenomena in turn.

Consider first the temperature readings for the period Make a summary, which can be retained for future use, showing the highest and the lowest noon temperatures, the perceptible tendency, if any, in the changes of temperature.

Next proceed to an examination of the cloudiness which has prevailed during the period If the signs of the Beaufort notation have been used, then a summary of periods may be made. It is recommended that at least the major divisions of *cloudy* denoted by *c* and *blue sky* (when not more than one quarter of the sky is covered) indicated by *b* should be adopted Mark the dates of longer periods with blue sky, and similarly mark the longer periods with cloudy sky.

Wind directions should be regarded as worth recording in the summary because of their secondary effect on temperature and their direct effect on rainfall As in the previous summaries, the extraction of details referring to periods of the same condition are more important than the classification of monthly or periodic totals without regard to the dates

Rainfall will have been recorded by the most impressive signs in the broader classification of *continuous rain*, *passing showers* or *fine* It will be found that the summary of rainfall is of greater value as a co-ordinating link with other recorded phenomena if it shows clearly the periods of *continuous rain* and those of *fine*.

Shadow length, taken from the readings made at noon (G M T), should form a part of the class summary. If one reading, say that of the 21st of each month, is shown to scale in some graphical way, the seasonal sequence can be associated with the sun's maximum daily altitude. As the summary is built up the variations and the similarities may be discussed, and the corresponding changes in other phenomena pointed out.

Remember the importance of the children's part in this work. Question freely on the weather of the period under review, remembering to confine your summary work to the major features which are easily appreciated by the class Much of this reconsideration of the past may be memory work, fostered by the teacher's remarks when the charts are exhibited Ask such questions as What does this row of black dots represent? (Rain on every day in one

week) Between what dates did it rain? Who can remember the week of which we are speaking? Tell us a few things that you remember concerning the weather in that week? (Reference to clouds, winds, or to the dark periods of heavy showers alternating with brighter periods)

Try to bring out confirmatory evidence in support of what you have discovered concerning the relationship between cloud and temperature. Which was the longest cloudy period during last month? (6th to the 11th.) What change took place in the temperature between the 5th and the 6th? (It fell from 56° to 50°) What change took place in the weather on the 12th? (It became warmer.) Make a list of the periods which were cloudy (sunny), make another list showing the cool (warm) periods. What do you notice when you compare your lists? Do the same with other sections of the chart, e.g. make a list showing the longest period of rainy days and also one showing the longest period on which the west (south-west) wind prevailed.

Teaching hints.—The weather study here indicated is an introduction to the work which in the secondary school becomes a definite understanding of all that is connoted by the word *climate* There should be no attempt to force the causal sequence at this stage, but easy deductions, the result of frequently associating phenomena, should be encouraged. It should be remembered that the reading of the records, and the periodic summarising of data, are of as much importance as the collecting and the recording of information We could have made our diary by writing notes, but we have chosen symbols, the device of the geographer, to indicate conditions The teacher may find several good types of weather charts. In keeping these, the points which call for special attention are.—

(*a*) The regularity of daily recording

(*b*) The part taken by the class in giving recorded data

(*c*) The conditions should be made vivid by the symbols.

(*d*) The *general* conditions should be apparent The meteorologist uses instruments to obtain information, while we are depending mainly on our unaided observations

It will be found helpful for purposes of summarising if records are made in series of strips in either horizontal or vertical extension. Thus comparisons, and therefore associations, are more easily observed Whether the children keep extracts of the records for their own use is a matter for the teacher to decide, but in practice it has been found by many teachers, that even from the beginning, such work should have a definite geographical exercise assigned to it In the past, the work has often consisted of copying in some condensed way the class records: a mere summarising of recorded facts without an understanding of their significance. The following extract showing the vertical strips pinned in position for chart inspection together with the outlined summary indicates the lines on which the work may proceed.

Every child in the class should have the opportunity from time to time personally to assist in making the daily observations of the wind, rain, clouds, sun, temperature, etc, and to help in the preparation of charts. Too frequently such work in the classroom is left to the monitors or to the "best" children Where pupils are known to be particularly slow in making observations or records, it is a good plan to let two of them work together. Some children who are shy in expressing themselves before the whole class or to the teacher, will do excellent work when in company with another pupil. Lessons in practical geography cannot be satisfactory if the children habitually sit still and watch others do the work. It is difficult to provide activities for every child in each lesson, but the teacher should always keep in mind that the work is supposed to be "practical."

Weather Chart.—

	May Temp.	May Cloud	May Wind	May Rain
2	56	b	S E.	—
3	49	c	W	C R.
4	51	c	W.	C R
5	50	c	S W	C R.
6	52	c	S.W.	S.
7	57	b	Calm	—
8	58	b	Calm	—
9	58	b	S E.	—
10	57	b	S.W.	—
11	53	c	S W	C R
12	57	b	W.	S
13	58	b	Calm	—
14	57	b	Calm	—
15	52	b	Calm	—
16	50	b	N.W.	—
17	51	c	N.W.	—
18	59	b	N E	—
19	60	b	S E.	—
21	62	b	Calm	—
22	61	b	Calm	—
23	60	b	Calm	—

Cloudy period. Lower temperature. Westerly winds. rainfall.

Clear sky. Higher temperature.

Clouds. Low temperature.

Summary.—

Temperature.—Highest temperature—21st.
Lowest temperature—3rd.
General change—Temperature rising

Cloud.— Cloudy periods—3rd to 6th.
Clear periods —7th to 10th.
—12th to 23rd.

Wind.— Wind periods, N W, W. and S.W. —3rd to 6th
—10th to 12th

Rainfall— Rainfall periods—3rd to 6th.
Fine periods—13th to 23rd

Shadow.— Change from last month—shorter.
(Same length as it was in July.)

STORY

Weather Lore

For ages men have been interested in the weather, and if we consider for a moment all that the weather means to us this is not surprising. The most important thing, and one that you will think of immediately, is that weather is one of the conditions which affect our harvests and, therefore, our supplies of food.

Farmers who have seeds to sow and crops to ripen wait for the most favourable time to do their work They know so much depends on the weather that their tasks are arranged, not as the ordinary workman's tasks, but according to the kind of weather. Breaking up the soil before the frosts, sowing before the rains, and harvesting in the dry, sunny days are some of the rules which the farmer makes The fisherman, too,

is interested in the weather, though not perhaps so much now as in the days of sailing ships Rough seas and high winds hinder his work, and compel him to seek the harbour or delay his departure from port. In more recent times the person who has taken a greater interest in the weather than anyone else is the airman. To him the strong winds and storms are the conditions which prevent his work from being done, and low clouds, fogs, and mists hinder good flying. At times we are all very much interested in the weather. Who has not wondered if it will be fine for the ramble, for the cricket match, or for the sports?

You will notice that all the people who are interested in the weather are anxious to know something about the future. It does not matter so much what is happening now, but what does matter is whether there will be a change soon. So we find that for years men have looked for signs which would show to them what weather might be expected. Many of the signs were so reliable that they were made into verse and are well known to many of us. Here are two of these weather maxims

> " Rain before seven,
> Fine before eleven "

> " A red sky at night
> Is the shepherd's delight;
> A red sky at morning
> Is the shepherd's warning."

We should try to test these maxims ourselves, and if we find after several trials that they are correct, then we may use them as guides. Sometimes we meet people who are good judges of what the weather may be in the near future We may hear someone say, "So and so is a good weather prophet," which means that he can often tell correctly the kind of weather we shall have. These people usually observe the sky and the scenery, and even notice the clearness of the air when they make weather forecasts. If you ask them, they will sometimes tell you that they know it will be fine because they can see a certain place on a distant hill.

Have you noticed that all the signs which are used have some connection with the air? The clearness of the air is one of the conditions which indicates to us whether it contains a large or a small portion of water vapour. Therefore, it gives us an idea of what we are to expect if the air is still and clear. In our modern methods of forecasting the weather, that is, telling beforehand what the weather will be like, we try to find out two things especially. These are:

(1) If the air is wet or dry.
(2) If the temperature will rise or fall.

Whether we shall have rain in the near future depends to a great extent on these two conditions, because there is more likelihood of rain when the air is wet, and a still greater probability of rain if the water vapour in the air is cooled by a fall in the temperature.

The daily weather reports which you may have seen in the newspaper, or which you may have heard by wireless, contain information about the wind as well as about the temperature and rainfall These prophecies are not made by remembering the weather maxims and simply finding out which one is most suitable for the day. They can be given only after much careful work by a staff of experienced men in London, helped by people in different parts of the country, on ships at sea and in aeroplanes From the wireless and telephonic messages sent by the many observers, the staff in London have a record of what the weather is like at a certain time around our island, and it is from this information that we know what kind of weather to expect

Because we are able to measure exactly the things which we understand by the word *weather*, we are better able to judge the seasons than could the people of a few years ago. Thermometers are a much more certain indication of the amount of heat than the guess of man; rain-gauges show the exact measure of rain that has fallen,

and wind force is measured by an instrument. Since these scientific instruments have been brought into use and records of weather have been made we have discovered many new things about our climate. Some of the old maxims have been proved false. When you have a chance try to find out if the following sayings are reliable.

" March, black ram,
Comes in like a lion and goes out like a lamb "

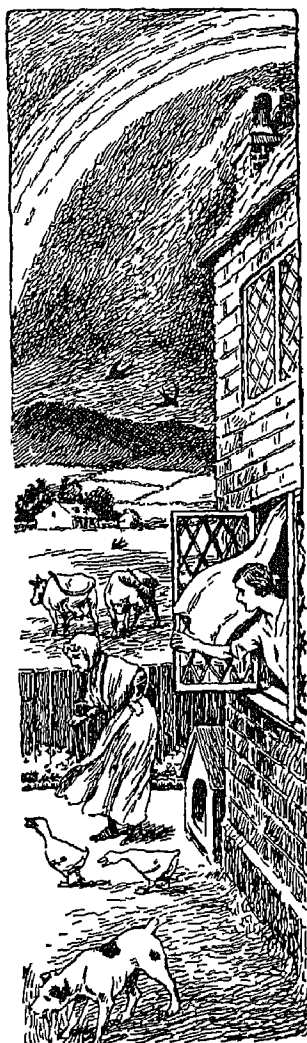
" February fill-dyke "

" March winds, April showers."

You will be interested in this poem which is full of ancient weather lore about rain:

Signs of Rain

The hollow winds begin to blow,
The clouds look black, the glass is low,
The soot falls down, the spaniels sleep,
The spiders from their cobwebs peep
Last night the sun went pale to bed,
The moon in halos hid her head;
The boding shepherd heaves a sigh,
For, see, a rainbow spans the sky.
The walls are damp, the ditches smell,
Closed is the pink-eyed pimpernel.
Hark how the chairs and tables crack!
Old Betty's joints are on the rack;
Loud quack the ducks, the peacocks cry,
The distant hills are seeming nigh.
How restless are the snorting swine,
The busy flies disturb the kine,
Low o'er the grass the swallow wings,
The cricket, too, how sharp he sings,
Puss on the hearth with velvet paws
Sits wiping o'er her whiskered jaws.
Through the clear stream the fishes rise,
And nimbly catch the incautious flies
The glow-worms, numerous and bright,
Illumed the dewy dell last night
At dusk the squalid toad was seen,
Hopping and crawling o'er the green;
The whirling wind the dust obeys,
And in the rapid eddy plays;
The frog has changed his yellow vest,
And in a russet coat is dressed.
Though June, the air is cold and still,
The mellow blackbird's voice is shrill.
My dog, so altered is his taste,
Quits mutton-bones on grass to feast;
And see yon rooks, how odd their flight,
They imitate the gliding kite,
And seem precipitate to fall,
As if they felt the piercing ball
'Twill surely rain, I see with sorrow,
Our jaunt must be put off to-morrow

EDWARD JENNER

SIGNS OF RAIN

USEFUL PRACTICAL WORK

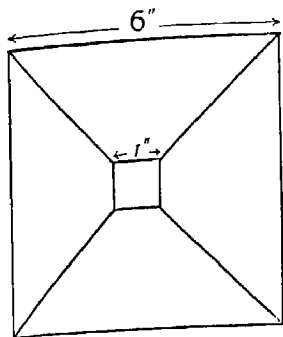



Fig 1

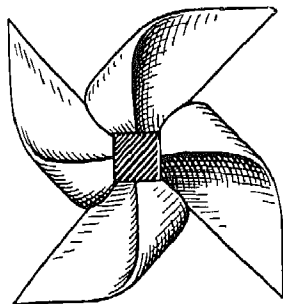
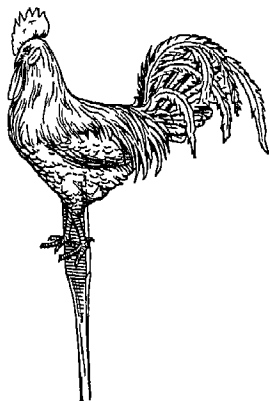
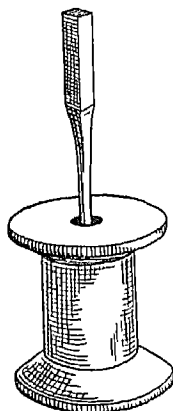
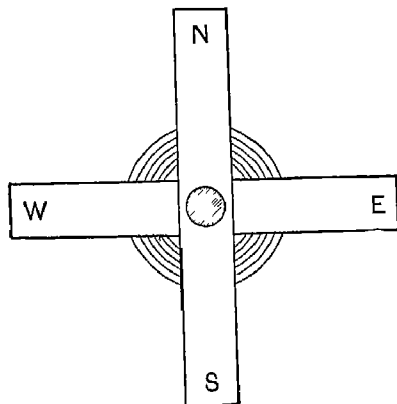



Fig 2—A Paper Windmill

1. A paper windmill. — In connection with the lessons on the charts the children will like to make a paper windmill Cut out and mark a square of coloured paper as in Fig 1 Cut and fold as in Fig 2, sticking two small square or circular pieces of card over the points in both the back and front. Push a pin through the cards into the end of a stick

2. A weather-cock.—Cut the shape of a cock from a piece of card and colour it Shape with a knife one end of a piece of wood so that it is smooth and round and will fit freely in the hole of an empty cotton reel Cut two strips of card with the cardinal points marked at the ends and fix with glue on top of the reel. Fasten the cock to the stick, make a hole in the strips of card and push the stick through, taking care that it works freely. Use these toys in the play-ground when talking about the weather. Let the children make other shapes in place of the cock, e.g a ship, an arrow, a fox

3. Kites and flags.—Let the children work together and make a kite. It will be useful during the lessons on the wind. Some children can make flags from odd pieces of needlework materials. (See black-board sketches)

4. Wind gauge.—It is hardly possible for young children to make a proper working wind gauge but they can easily make a model which will turn fast or slow according to the strength of the wind. Take two coconuts and carefully saw them both in halves. Bore holes for the sticks as shown in the blackboard sketch. Take a flat wooden wheel such as is used in a toy engine, bore holes in the rim and glue in the sticks Arrange for the model to work freely round an upright stick fastened securely on the top of a post or on a wall.

A Weathercock

Cotton Reel

The Cardinal Points

5. Smoking chimneys.—Let the children draw the shapes of houses—say six—in their exercise books. Select a suitable day, and after the children have observed the direction of the wind let them add the smoke to the first house. On other suitable days let them add the smoke to the other houses.

6. A hygrometer.—In Fig. 1 below is shown a sketch of an interesting hygrometric model which will be familiar to our readers Several children can work together to make this model. The measurements for the base and the wooden house are given in the sketch. The base B, Fig. 2, on which the figures are placed, is balanced with a piece of a violin string which passes through a loop made of a piece of wire—a hairpin will do—and is then fixed above into a wooden peg which can be turned rather tightly in a hole in the front of the roof. The figures of the man and woman can be made of lead, or of plasticine modelled round two thin screws which pass upwards through the base Moisture in the atmosphere will cause the string to twist, and so move the figures. The position of the figures can be adjusted by turning the wooden peg, so that the lady appears in dry weather and the gentleman in wet weather.

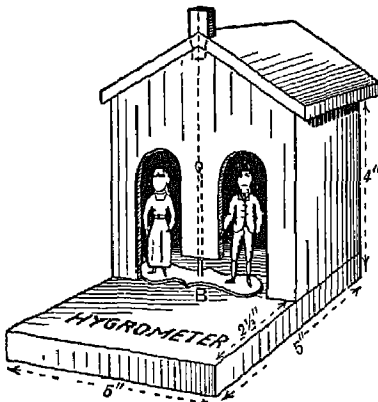
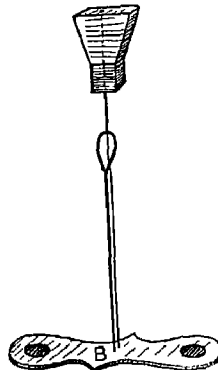



FIG 1 FIG 2

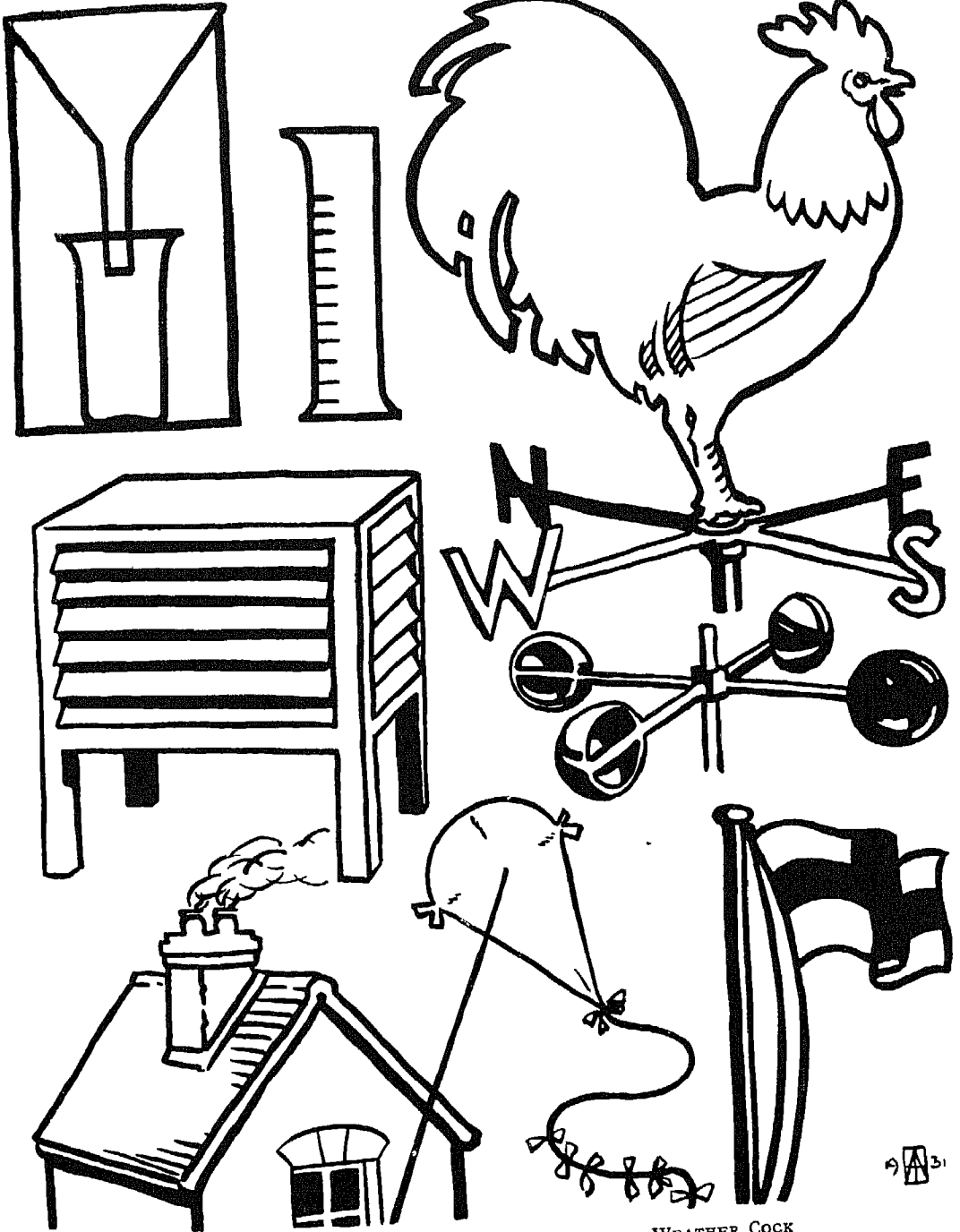
5. THE STUDY OF SCENERY—HILLS

Aim.—To teach the children to recognise types of surface features, and help them to contrast various forms.

Method.—Choose a convenient place in the open from which a good view of the landscape can be obtained. Select the highest point in view and question the class on its direction, distance and height. Find out from the children the ways by which this point may be reached from the place of observation. Examine the profiles of the hill, and let the children classify these into (*a*) steep slopes, (*b*) gradual slopes If a precipice can be seen, point this out for special attention and refer to the hard rock of which it is formed. Change the point of view and make a similar criticism of the hill profiles. Ask the children questions concerning the surroundings. Is the hill part of any range? Is it a hill amongst a group of hills? Is it a height surrounded by low flat land? If the hill is part of a system find out something about the other heights. If other heights in the same range or in the same group can be seen from the district, then make contrasts of slopes and altitudes.

If it is impossible to take the class out for actual observation of the school surroundings, the most effective way is to use views of the district or make sketches on the blackboard The teacher will have little difficulty in selecting pictures and photographs which can be drawn readily on the blackboard for illustrative purposes where it is not possible to study at first hand Examine the drawings with the class as you would examine the actual places.

Note the details of slope, and contrast the bold with the gentle features, using for this purpose

SKETCHES FOR THE BLACKBOARD

RAIN GAUGE
THERMOMETER SCREEN
SMOKE AND A KITE

WEATHER COCK
WIND GAUGE
FLAG

views taken from as many points as possible Point out the spurs and valleys which can be seen on the mountain slopes. Ask the children to find similar features on the other pictures and let a child point them out.

PAINSWICK BEACON AND KIMSBURY CAMP

This lesson may be followed by a session for the sketching and modelling in clay or plasticine of the scenery which has been examined Let the children make rough sketches of the chief points when viewed from several places Aim at securing a fair representation of the slopes If the hills are known by name this may be written above the sketch and subsequent reference to the type may be made. These first sketches should be simple attempts to indicate the distant outline of the land, later the picture may be built up by the addition of a few lines showing the nearer slopes and other simple details of scenery such as streams, spurs, cuttings and embankments. The bringing out of differences by examination of sketches may now amplify similar contrasts that were observed in the open.

Hints.—A study of hill forms makes a good beginning to the general observation of scenery because·

(1) The features are prominent and clearly defined from the surroundings

(2) Frequent observation of the sky line engenders a familiarity with hill profiles

(3) These are often well-known locally and will serve as key positions in our topographical work

(4) From the hills we may continue other studies of scenery.

It is a good exercise to consider what surface features look like from another point of view. If you try to imagine what your hill looks like to the boy at *X*, and contrast his track to the summit with your own, you will find that the hill begins to assume shape

A fair idea of the altitude of the local hill should be given, and here, perhaps, it is

necessary to make clear to children the fact that heights are stated as a certain distance above sea level. Find from the ordnance map the height of the bench mark nearest the school, and determine the difference in altitude between school and hill As in all our local studies, the features which we observe will be referred to when similar features in distant lands are mentioned Comparison and contrast between home conditions and those in other regions cannot be too often repeated

STORY

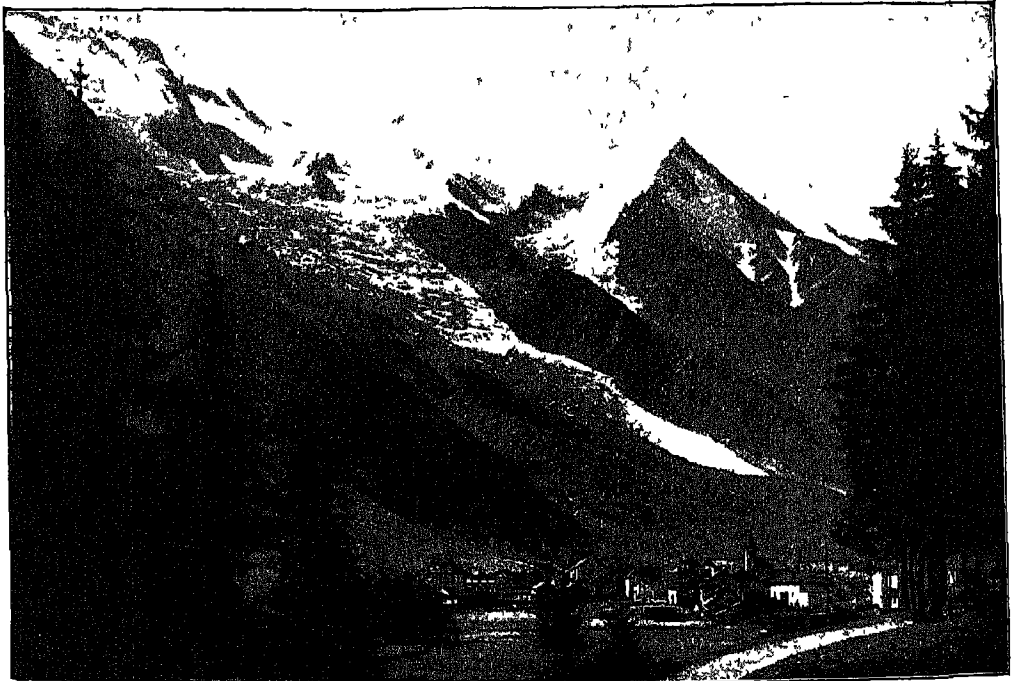
Hill Climbing

Nowadays many people are fond of walking about the country in small parties or groups. These "hikers," as they are called, are chiefly city or town dwellers who, being tired of the scenery in which they live when they are working, and wanting to have fresh air and exercise, plan a journey into the country. Many of you may have seen them, stepping out on an arranged tour carrying haversacks, wearing suitable clothing, and sometimes carrying sticks. Hill climbing is one of their chief pleasures. Not only is there the joy of climbing steep hillsides, sometimes by picking out the best track for oneself, but there is also the reward of a good view when one reaches the summit

Many of the hikers enjoy climbing the nearest local hill. Let us try to imagine how they will plan their climb. Generally they will want to reach the highest point on the hill to which they can walk on a good road. Such roads often ascend over a low spur of the hill to avoid the greater distance around the foot. If the party of walkers go along this road they will not be approaching the summit directly, but they will be climbing by a gradual ascent to a place a little nearer the top of the hill At about the highest point on this road they will turn towards the summit, leaving the road and proceeding along paths which will gradually become fainter Little side tracks can now be seen, and the climbers have to make a choice of the different ways before them Younger members of the party will generally choose the shortest way, which compels them to climb the steep, rock-built side at a place where only the strong and sure-footed can ascend. In the intervals between their struggles to the top, we can imagine these climbers resting against the rocks and watching the other travellers climbing slowly along the easier, but longer, tracks which they have chosen.

Sometimes the excursions of these people will take them across a mountain range. At such times it is not their wish to climb as high as possible but to travel from one side of the range to the other by the best route. In finding this route they bear in mind two important points· firstly, to make the track as direct as they can; and, secondly, to cross the range at as low a point as possible This means that their roads are never straight, and also that over a long range of hills there are often tracks leading to the lowest parts These low places are known as passes and are very important parts of the range. Some of the highest ranges of mountains in the world have very important passes, or openings through which travellers pass when crossing the range Try to imagine how important the passes are in the Rockies of Canada through which the railways are laid. Though the passes in the Pennine Chain are very much lower than those in the Canadian Rockies, they are very important to travellers going between Lancashire and Yorkshire. Therefore, when the party of hikers select a low part of the range and decide to cross there, they are only doing what the best road makers have always done. One thing that may be noticed as they ascend the slopes of the range is the winding railway track which is a long way below them It seems hard for them to understand why the railway engineers did not lay the track to the lowest pass, but soon they realise that railways are generally cut *through* the ranges

The stream of smoke from the engine shows that the direction of the railway route is up the stream valley Then at a place where the range is narrow, the smoke is no longer seen because the train has entered a tunnel In a few minutes it will be at the other side of the range

Other climbers like to be more daring in their pleasures and choose to ascend hills that are high and steep To do this they are specially equipped with axe and rope and, in the more difficult ascents, engage a guide who knows the best way to the summit and is an experienced mountaineer. When attempting a climb of this sort, the climbers are roped together, a guide leads the way and at the other end of the rope is another strong mountaineer. The process of climbing is slow and strenuous Over the hard, jagged rocks which sometimes rise vertically before them, the people climb in easy stages In front is the skilful guide, often picking tiny footholes in the rock above him, then climbing a few feet while those behind step into the crevices that he has just left. Then from boulder to boulder and from ledge to ledge the party climbs to the summit, the stronger supporting the weaker as they cover the difficult stretches. Climbing such as this is often done in Switzerland. On the Alps the cattle are driven up steep slopes to the summer pastures. The cows are moved from the villages in the valleys during spring, when they are taken to the *mayenne,* or Maytime pastures, about half-way up the hill slopes Here they graze until the *alp* or high pasture is clear of snow, then they begin the difficult climb to the summer grazing lands The sure-footed beasts, ascending in single file, follow a leader which carries a bell round its neck, while the farmer carries a few of the things he will need when he is living in the small hut on the high pasture On the alp the farmer makes cheese, for the milk cannot be sold each day as the spot is too far away

[*The Photochrom Co*

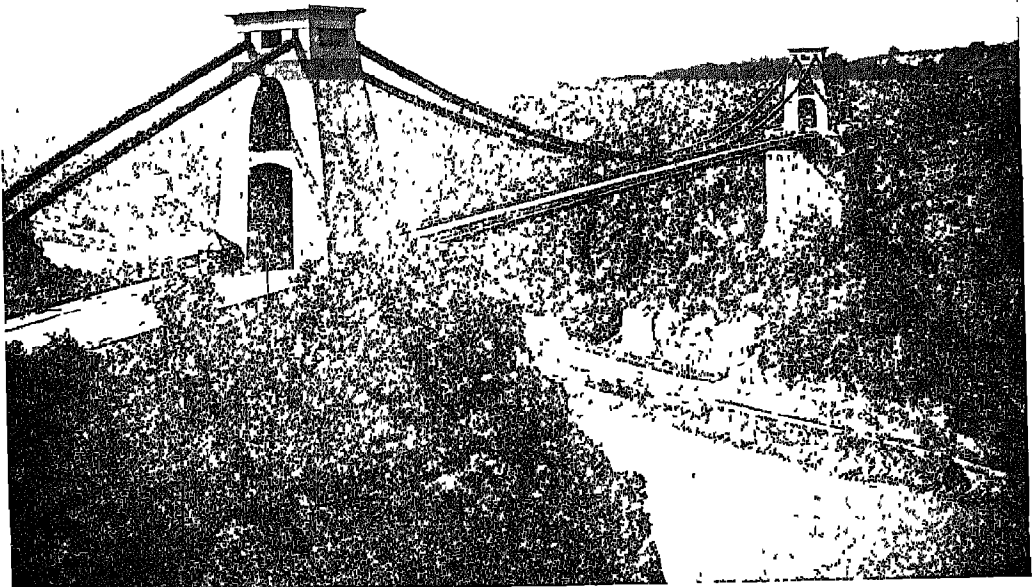
CHAMONIX AND MONT BLANC

from any town and it is too difficult to reach the valley below.

What is the reason why hill-climbing is so well liked? It is often very strenuous work, but there is generally a delightful view to be had from the top. Then on the summit the climbers feel that the air is fresh and cool It gives them a splendid appetite and they sit down happily to enjoy the sandwiches they have brought with them Because it is cooler and healthier on hillsides than in the valleys or on the plains, we find that in some parts of the world the larger towns are built on hill slopes, sometimes at a great height above sea level. In their lessons on India and Africa the children will learn about the hill stations of Simla and Darjeeling, and they will learn, too, of the British settlements on the highlands of Kenya.

6. THE STUDY OF SCENERY—VALLEYS

Aim.—A continuation of the study of land forms.

Method.—Take the children to a place where they may examine valley scenery. In which direction does our valley extend—north? south? east? west? Notice the valley sides Find out the steeper sides Grade them:—(1) those which cannot be climbed, the cliff sides; (2) those which are climbed with difficulty, the steep sides, (3) those which are not difficult to climb, the gradual, or gentle slopes Notice the vegetation on the slopes Are there any bare, exposed rocks? What kind of slopes do these hard rocks make? Examine the valley floor Is it wide or narrow? Does its width vary

[*By courtesy of the L M S Railway*

THE AVON GORGE CLIFTON BRIDGE, BRISTOL

in different places? Look for places where there is a difference in vegetation between opposite sides of the narrow valley. Is this difference due to the causes which you can "discover" Ask the children to search for causes Soil or sunshine, as the factors influencing the vegetation, are clues which may help to a correct answer. Confirm a solution or help towards making one by referring to the slope aspect. Find the branching valleys Follow one for a distance, contrasting the narrow floor—liken it to a *V*—if possible the sharper bends, and the shallower sides with those of the main valley. Is there a gorge in the valley? If there is, examine the sides and the depth.

A lesson in the classroom on the subject of valley forms should be based on an examination of local views. Somewhere in the school district and possibly within a short distance of the children's homes are to be seen natural channels which indicate the features we wish to study. Pictures, photographs, or sketches of the scenes *known* to the children should be shown. Notice the valley slopes, contrast the depth at different points, and let the children observe the variations in the valley floor. Does the valley wind or is it direct? Is the valley a stream course? Let the children model valleys in plasticine or papier mâché. The representation of parts of a local valley is the best form of exercise, and in this work the use of photographs, pictures and sketches will help to remind the children of the various aspects of the profile. Ask the children to label the gorge, the cliff, the waterfall, etc., by sticking into the model pins holding suitable signs. Exercise in sketching parts of the valley will also be helpful, and such work should necessarily be of a simple character at this stage

Teaching hints.—Here the work will proceed in general along the same lines as that suggested for the study of hill forms. There should be as full a treatment of the local valley as possible Imagine what the valley looks like to the boy at another place higher than your town and in the same valley Treat the subject sequentially from end to end, supplementing your local views with descriptions and illustrations of the valley above and below your town In some localities the varied appearance of the valley slopes is so obvious that even the children will conclude that the rocks have some control of the scenery, some valleys showing very clearly the bold profiles of harder rocks and the more gently rounded forms made by softer rocks. Terraced sides are such a common feature of our valleys that in some localities, these may receive a recognised place in the list of classified slopes. We should not overlook the wide valleys in our survey, though, by reason of their extent, and their matured and gentle features, these are generally less obvious than the types mentioned Here we can show the scenery which closely resembles the plain, keeping in mind that we are making the best possible use of neighbouring scenery types when we contrast them with the features on a bigger scale in other lands.

STORY

A Walking Tour in Wales

One of the greatest advantages which the walker has over the cyclist or the person who rides in a motor car is his greater freedom. He is not compelled to keep to the good roads but may turn into the byways, or make, at times, a track which suits his fancy or shortens the distance It was because of the wish we had to explore that our little party decided to spend a few days amongst the hills and valleys of Montgomery. We left the little town of Llansantffraid, which is in the north-east of the county, without having any definite place as our destination. Our only plan was to reach each evening a village where we could rest and refresh ourselves for another stage of the journey on the following day.

At first our way was along the wide valley of the river Vyrnwy. On both sides of the narrow, quiet road the land stretched out in gentle curves, while away in the distance the high mountains of North Wales stood in dark masses on our right, and the more distant hills of Shropshire could be seen on the left. Soon river and road were nearer as the valley narrowed, and from our position we were surprised by the clearness of the water. It was so much unlike other swift-flowing rivers that we had seen, in which there was never any chance of seeing the bed. To-day we could see the water, clear as crystal, rushing between rocks in places and throwing little fountains which shone in the sun; while the bed of smooth pebbles looked like a track that had been made for the river. The road began to rise a little and we noticed that we were now some distance above the river, travelling along a ledge in the side of a steep slope. On the right was a hillside, overspread with ferns, broom, and tiny clusters of trees which hid the steep, rugged face of the rocks. To the left the view was very different: the road ended sharply where the slope of the hill was continued to the river valley many feet below. Across the river we could see the opposite side rising more gently from the water's edge, across the cultivated land, to the pastures beyond.

From this point we decided to climb the hill by the track which left the main road close by. Our climb was not so easy as it had appeared to be from below. The path which we had followed from the road had been easy to follow, but this had ended near the farmer's cottage on the hillside about half the way up. The higher part was steeper, and in those places where it could be climbed a strong, thin grass grew. On the slopes, and on the flat summit which we found when we had finished our climb, sheep were grazing. Being tired after the climb, we rested at the top of the hill. We had reached a tiny plateau, about 400 feet above the valley, with a summit that was almost circular. As we sat at the rim of the summit with the steep sides just beneath us, we had a good view of the valley below The clearest feature was the river itself, with its loops and bends along the floor of the valley, but we also noticed the narrowing valley stretching miles downstream and miles upstream, and almost as clearly marked as a letter V with the point towards the hills. We could see part of the road along which we had walked that morning, and it made us think how easy it was to travel along the valley of the Vyrnwy, compared with the struggle we had made to climb this hill. That night we rested in Meifod, a village in the valley, close to the river at one of its sharp bends To our surprise the descent of the hill was almost as difficult as the climbing had been. We had to retrace our steps in easy stages, taking care to retain a foothold, which we often did by turning right or left to grip the soil with the side of the foot. Even when we did this, sometimes we could not stop ourselves from slipping several yards at a perilous speed over dangerous slopes.

The next day we decided to set out for the hilly district in the south-west, near Plynlimmon This stage of the tour took us for a few miles along the valley of the Vyrnwy, which we left by following the valley of its largest tributary Between the confluence of the rivers and Llanfair we saw the ridge separating the valleys of the Vyrnwy and the Severn These rivers flow in parallel valleys about five miles apart for over fifteen miles before they meet on the plain near Shrewsbury.

Near Llanfair, our party decided to divide. One group had determined to leave the road and make a short cut over a spur, while the remainder of the party preferred to follow the main track round the base of the hill. Those of us who started to climb the steep slope felt sure that we should be rewarded for our extra exertions by reaching the appointed meeting place long before the others. Once, when we had just passed over the top of the crest, we saw our friends walking briskly along their easy route and

we felt pleased with ourselves as we thought of the distance they had still to walk. This was not a race We were following the way we had chosen at our natural pace Everyone had thought that those who took the short cut over the hill would reach the meeting place first Can you imagine the surprise of everyone when the other party had to wait for us? Once more, when a section of our party decided to cut across a valley instead of keeping to the road which kept at almost the same level, it was proved to us that the shortest cut is often the longest way round The road was bent up the valley almost like a V. As some walked along the arms of the V, others went down the shorter way from point to point. The difficulties of descending the steep slope on one side and of climbing the other side (both of which were avoided by following the longer way) were just as great as those had been when we crossed the spur

7. THE STUDY OF SCENERY—STREAMS

Aim.—A continuation of the study of local scenery

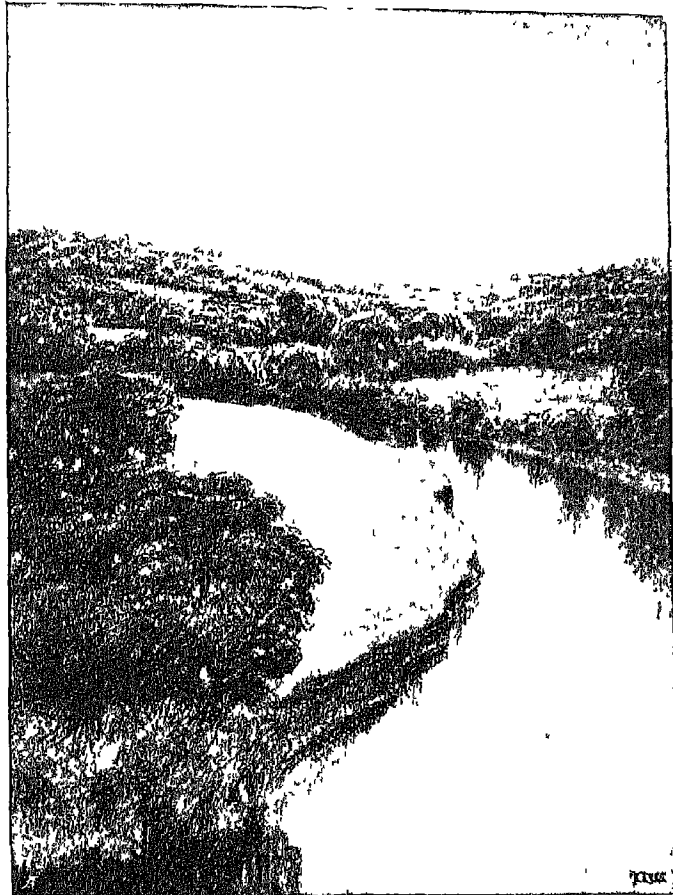
Method.—Take the class along the stream course Observe the windings and notice the banks on the concave and the convex sides Contrast the different sides at as many points as possible, noticing the fine sediment on the inner, or convex bank of the bend. Are there any falls? Notice the rock at the head of the fall, and point out the rapids above the fall Examine the tributaries. Proceed from the confluence, where a reference to the intervening bank of silt may be made What is happening where the tributary water meets the stream water? (Whirlpools are formed) What is happening to the silt carried by the small streamlet? (It forms the narrow land extending down-

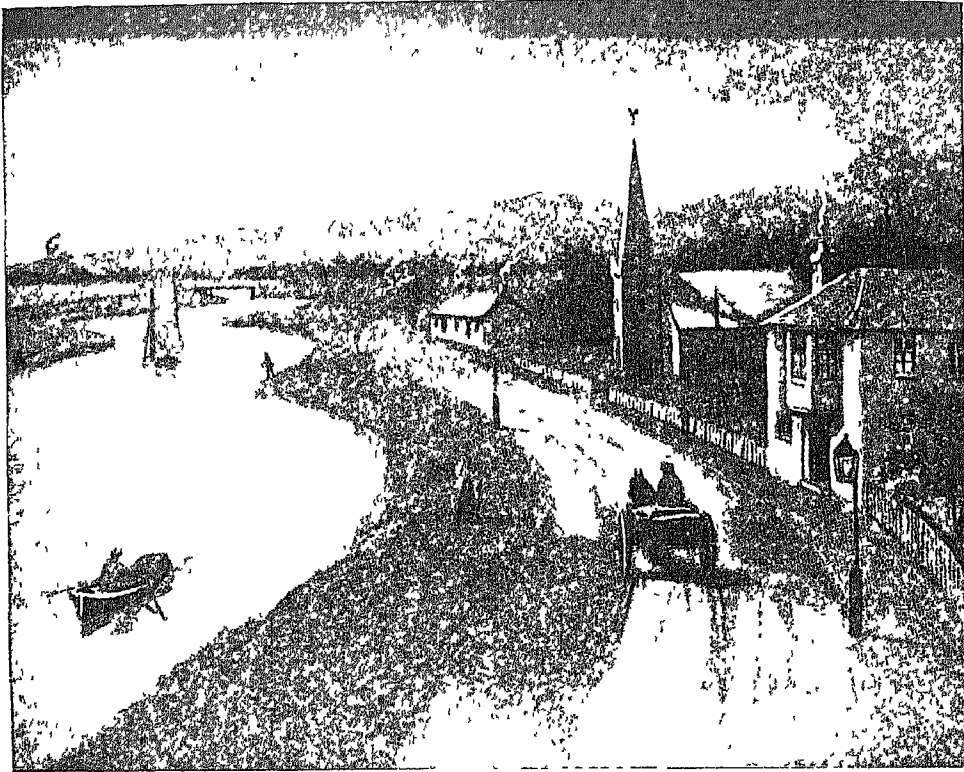
Brecon Bridge

stream at the confluence) Trace the tributary and notice the small contributions to the water in its channel—field drainage, the additional supplies from sunken roads, and the water from the hillside Make a series of observations at suitable times so that the fluctuations in the stream's height may be seen Which supplies are the most variable? Trace the dry channel on the hillside where a few weeks previously a torrent rushed in cascades down the slope Make comparisons of depth and clarity of the streams during dry and wet weather Try to find the watershed by tracing the stream to its source. Go over the crest to the stream flowing in the opposite direction Find out the river into which this stream flows. Where does this river enter the sea? Into which river does our stream flow? Into which sea does it flow? Examine the source of the main stream. Does it begin as a spring? If so, let the children observe the soil and rock near the spring. Search for traces of differences in the rock above and below the issuing water. Is the source on the moors? Sometimes, in dry weather, the narrow grooves between the moor grasses reveal the course of the rills after showers

Notice the vegetation along the stream course. The abundance of wild plants is in contrast with the sparse cotton grass on the hills Animal life, too, is more evident, and the activities of the vole along the stream banks will serve as an illustration of the habits of riverside rodents.

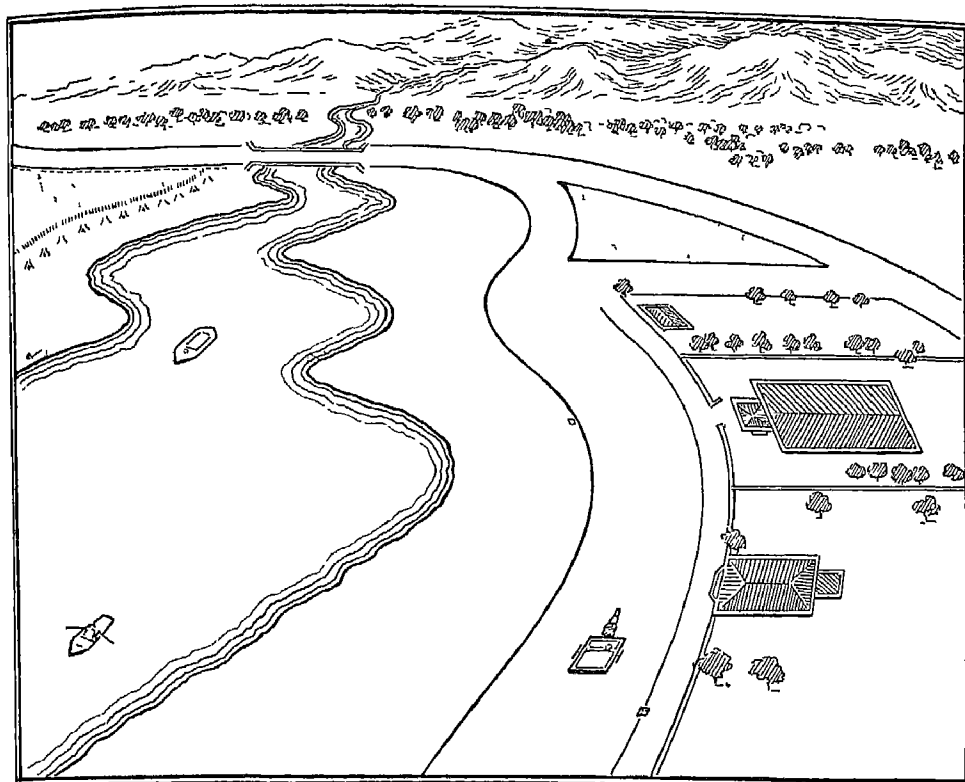
Fording places and bridges should be noticed Draw attention to the connection between these and the tracks and pathways. How far is it to the next crossing place? What kind of crossing place is it? Where can you jump across this stream? How wide is it here?

If the stream is small notice the result of obstructions in its course. This may perhaps be seen by observing natural interference with its flow, e g drifting leaves, branches, sticks, etc., but should these be absent experiment with available material Make a dam. Watch the reservoir fill and eventually overflow

ALONG THE TEIFY

If the locality is a favourable one for such observations, notice the clear brook flowing

A COUNTRY SCENE

quickly over the bed of hard rock or pebbles. Contrast this with the slower flow of the water laden with silt flowing over softer layers.

In the classroom make use of a series of photographs showing views of the stream at different points and at different seasons. Arrange the pictures in sequence down stream and make contrasts between the stream bed at one point with that at another Where is the bed widest? At which point is it shallow? Which side of the stream is deeper? In what way does the slope of the bank help you to decide this? Which bank is the steeper here, the left or the right? Show pictures or sketches of sources, e g the spring, or the rill channels on the slopes Ask the children to describe the springs which they have seen in the district. Keep especially to these points: position, (high or low), rocks, (hard rocks, clayey soil, or sandy soil), height of spring, later course of water when the water is flowing Notice the smooth boulders in parts of the course, and contrast these with the jagged rocks above the water level Why are the rocks in the water smooth? What has happened to the part worn away? Examine the views of lower reaches. Notice on these the small, smooth stones and the grits To which part have the finer grits been taken?

Try to trace the courses of the local streams Ask the children to name the places (farms, woods, buildings) each stream passes Do any of the streams meet? Where do they meet? What has separated them as far as that place? Are the other streams separated by a ridge? Let the

PLAN OF THE PICTURE ON THE OPPOSITE PAGE

children recall the local elevations and depressions and ask them to name some of the knolls or higher parts which separate stream courses. Which river does the stream from H——'s farm join? Is there a stream which does not join that river? Where do these streams begin? Which high land separates their sources? If rain falls on the west side of B—— Hill into which stream will it flow? Into which stream, if it falls on the east side?

Teaching hints.—The following are important points to bear in mind during the lesson.—

(1) That the volume of the stream is directly dependent on the weather

(2) That there is almost an immediate change in the volume of water and its speed after a heavy shower. (Changes are less marked as we descend)

(3) That hillcrests and slopes separate the streams, each of which has its own valley.

(4) That the running water changes the surface over which it flows

(5) That sources differ, and the water is "pure" or "impure" according to the degree of hardness of the rock over which it flows

(6) That when the stream is obstructed a "lake" is formed.

(7) That vegetation is profuse on the fertile banks of the streams

(8) That stream courses are a useful guide to the relief of a district, just as in the converse instance, by knowing the relief one could find the probable stream courses.

(*Note* This course is continued in Vol IV., page 493)

HANDWORK FOR THE GEOGRAPHY LESSONS

AFRICA. I.

The geography lessons in this volume begin with the study of Africa and its peoples, subjects which provide abundant material for the teacher of handwork to use for expressional purposes. Our object will be to select fairly typical examples; now and again these will be based on the illustrations supplied in the volume and in the portfolio

A common sight in Uganda and other parts of Africa is the milk carrier with his "bottles" of goats' milk. The apparatus used, two earthenware vessels suspended from a pole, is the first model described The children begin by modelling the vessels in clay (Fig 1 A) working from a sphere as the fundamental shape Before starting, they should roll two clay spheres of exactly the same size. The first pot is then modelled by drawing out the sphere into a stunted carrotlike shape. The point of the carrot is pressed gently down on the board, and about ½ in. of it is rotated between the finger and thumb to form the narrow cylindrical neck The groove shown in Fig 1 A is added by means of the back edge of a knife, or the edge of a piece of thin card, holding the vessel horizontally in the left hand and the knife in the right.

The two pots should be made of the same size and shape and then should be put away to dry The next step is to construct the sling in thin twine, thick thread, or raffia A ring is tied which will exactly fit the groove in the dried pot, four vertical strings are then added to the ring, using slipknots, Fig 1 B. The pot is placed in the horizontal ring and the four strings are tied round the end of a kindergarten stick as shown in Fig 1 C A pretty effect is obtained if the stick and strings are painted yellow and the pots the natural red colour of earthenware.

The children will read of the cone-shaped huts with thatched roofs made by the Africans in Uganda In Vol I, page 523, a simple model of such a hut was given, in this lesson a more elaborately constructed model is described. The children should place on the modelling board an irregular mass of clay, about ½ in. thick, on which a circle must be marked (the rim of a cup may be pressed on it to mark the circle), a series of thin twigs, or lengths of thin pulp cane, are stuck into the clay along the mark, as shown in Fig 2 A. The twigs are slightly notched about 1 in. up and bent inwards to form a cone as shown in Fig. 2 B. They are then tied with raffia and the excess lengths are trimmed off with scissors. Using a raffia needle, the walls of the hut are woven over and under the sticks. The weaving is continued to the top of the hut, and some short vertical lengths of straw are sewn on to the roof For the door, a piece of black paper is stuck to the walls, Fig. 2 C. A pleasing effect is obtained by grouping models of varying sizes to form a native village, with cardboard foliage, stones for boulders, and sand for earth, in front of a pastel scenic background, Fig. 2 D

The last model is that of an African drum, formed by rolling down the ends of a cylinder of clay, Figs 3 A and 3 B When the clay is dry, two pieces of brown material are cut in irregular shapes and are sewn down with thread to cover the ends of the drum as shown in Fig 3 C.

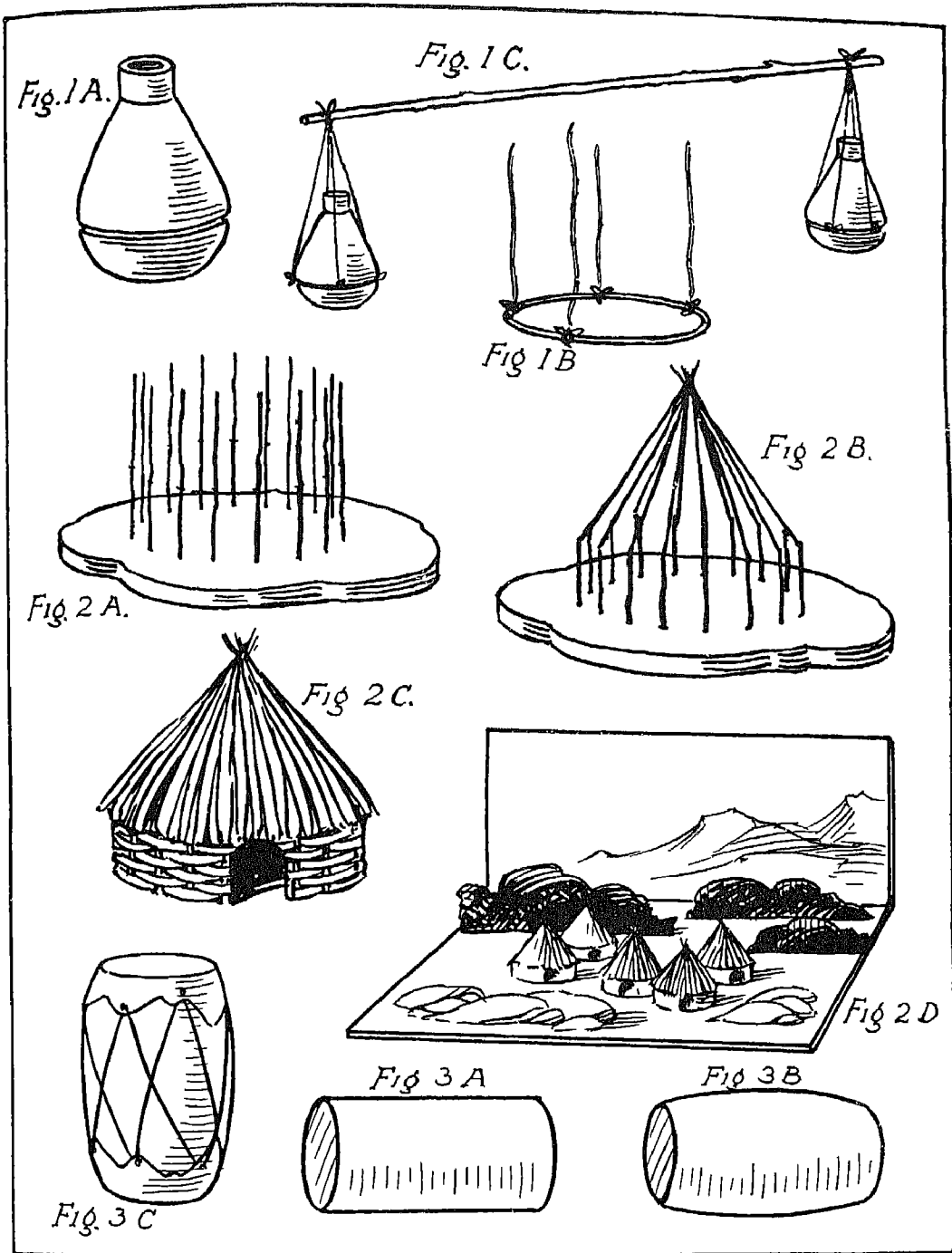



PLATE I

Fig 1 African Milk Carrier's Jars in Clay, Thread and Stick
Fig 2 Conical African Hut in Raffia and Straw Group Model of Several Huts
Fig 3 African Drum in Clay, Material and Thread

AFRICA. II.

From the people of Uganda, the children pass on to the Zulus An illustration of a Zulu is given in the Class Picture No. 88, which may be hung before the children as they do their handwork.

The first exercise shown on the accompanying plate describes the construction of a Zulu shield, which in reality is made from skins of animals. The children may compare this shield with those described in the historical handwork lessons of the earlier volumes of this work. It is planned as a paper-cutting exercise, using white cartridge paper; the shield is afterwards coloured with pastel or water colour On a folded piece of paper (Fig. 1 A) an elongated shield shape is sketched, and eight slits are marked on each side of the middle line as shown. Before cutting out the shield, the sixteen slits are cut out with the tip of a pocket-knife while the shield rests on a piece of old wood or cardboard The shield is then cut out and opened (Fig 1 B), when the slits will be thirty-two in number. The next task is to thread through these slits with two strips of dark brown paper or raffia (Fig. 1 C), leaving the ends projecting. (If raffia is used, the threading may be done by means of a needle, but care must be taken during the process.) Finally, the shield is painted cream, Chinese white and yellow, with rich brown patches as shown in Fig. 1 C. To complete the Zulu warrior's war-kit, a knobkerrie may be constructed by mounting a sphere of clay upon a kindergarten stick, Fig. 1 D

After having constructed the conical huts of Uganda, described in the last lesson, the children will be interested in the native dwellings of the Zulus. These are hemispherical in shape, and afford an example of planning that is new to the pupils. First of all, several of the shapes shown in Fig. 2 A are cut. (To produce the symmetrical pointed shape, a pattern cut from a folded piece of paper should be used) It will be noticed that the shape carries a number of small triangular fixing tabs along one of its curved edges, and a larger and more solid rectangular tab at the base of the edge. After one of these segments has been drawn and cut out it may be used as a pattern for the remainder of the segment shapes. Next (Fig. 2 B), eight or ten, according to their planned width, of these segments are gummed together by the basal tabs to form a strip, which is bent round to make a circle, and gummed. The pointed upper portions are then bent inwards and carefully stuck together by means of the small triangular tabs. Here the children must exercise a certain amount of patience, holding the tabs from within and without until they adhere A good strong adhesive of the seccotine variety is preferable to gum or paste for this purpose. The completed model (Fig. 2 C) is painted dark brown and given a coat of adhesive; while this is wet, pieces of dark brown raffia are stuck to its surface. A doorway is either painted on the card, or cut away, Fig. 2 D. As described in the previous lesson, the dwellings may be grouped before a background to produce a Zulu kraal

Fig. 3 A shows the brim of a "Fuzzy Wuzzy" shield which is illustrated on page 519 It is constructed in clay by pressing a ball carefully on to the modelling board, and cutting out the middle portion and the semi-circle at the edge. The central portion (Fig. 3 B) is a hollow cup with a ridge added to it. The completed model is shown in Fig. 3 C The "Fuzzy Wuzzy" sword (Fig. 3 D) makes an interesting flat plastic model

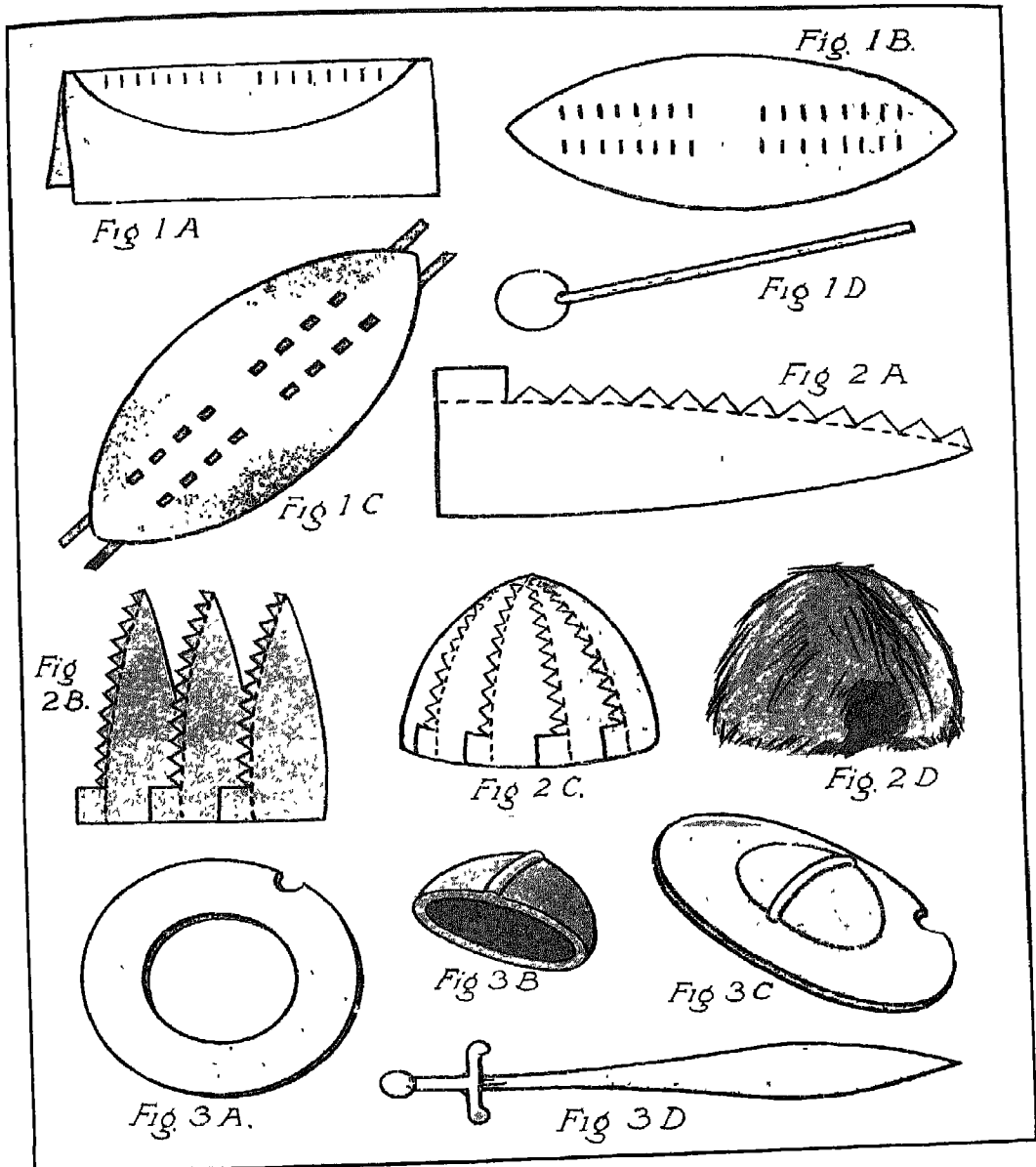



PLATE II

Fig 1 Zulu Shield in Card and Paper
Fig 2 Zulu Hut in Paper and Straw
Fig 3 "Fuzzy Wuzzy" Shield and Sword in Clay

AFRICA. III.

In the course of their lessons the children learn that a common form of conveyance in South Africa is the jinricksha, which is pulled along by a young man who runs between the shafts It will be interesting for the children to compare this conveyance with the early Roman litter, which is described in the historical handwork section of this volume, and also with the Sedan chair, which is described in connection with the fourth year's course of history

The accompanying plate shows how the children may construct a simple model of an African jinricksha, using two match boxes as a foundation. Fig 1 A shows how the ends of the two match boxes are removed first of all, to enable them to be fitted together as shown in Fig 1 B, with the sides of one box enclosing the sides of the other These two cut ends are fixed together at an angle, and the sides of one box are stuck to the sides of the other, using a good strong adhesive for the purpose, as a firm joint is necessary at this point A kind of sunshade is added to the top of the jinricksha. This may be a strip of coloured paper pasted to the box along its edge, and fringed at the free end with the points of the scissors. Halfway across the lower box a seat is added. This is a narrow strip of thin card with a fixing flap at each end, and it should be fitted at such an angle that it will lie in a horizontal position when the jinricksha is being pulled along. Two curved pieces are cut out of fairly stout card, which are punched with holes to receive an axle which may be a wooden toothpick, or a piece of kindergarten stick. Fig 1 B shows how these axle supports are stuck to the sides of the lower match box in an oblique position parallel with the box which forms the back of the jinricksha Two wheels of fairly large size are now cut out and fixed to the axles To complete the model (Fig 1 C), two longer sticks which form the shafts are stuck one on each side of the lower box These also require strong adhesive, and to make them firmer still a strip of paper about ½ in wide may be stuck over them to extend to the box sides.

The children learn that the African peasants use curved wooden pillows in their huts The next exercise shows how such a native pillow may be constructed in stout paper or thin card. In Fig. 2 A will be seen the plan of the pillow, which is in reality an oblong box with a curved top The two curved edges should be drawn with a paper pattern to ensure a symmetrical result, these edges are provided with small triangular fixing flaps When scored and stuck together, the finished shape will appear as seen in Fig 2 B. To complete the pillow, a rectangle of thin card, large enough to overhang well, is cut and stuck to the top, Fig. 2 C. The whole is painted brown and black to represent carved wood.

Fig. 3 A shows the first stage of a plastic model of a maize cob. To a central stem of clay, small pellets are added to complete the whole cob, Fig 3 B.

A paper-cutting project of mealie cobs is shown in Fig 4 This may be made by the co-operative work of several children The upper portion of the background is tinted pale blue, the lower is made of grey paper The pot is cut from orange paper, and markings can be added with pen and ink

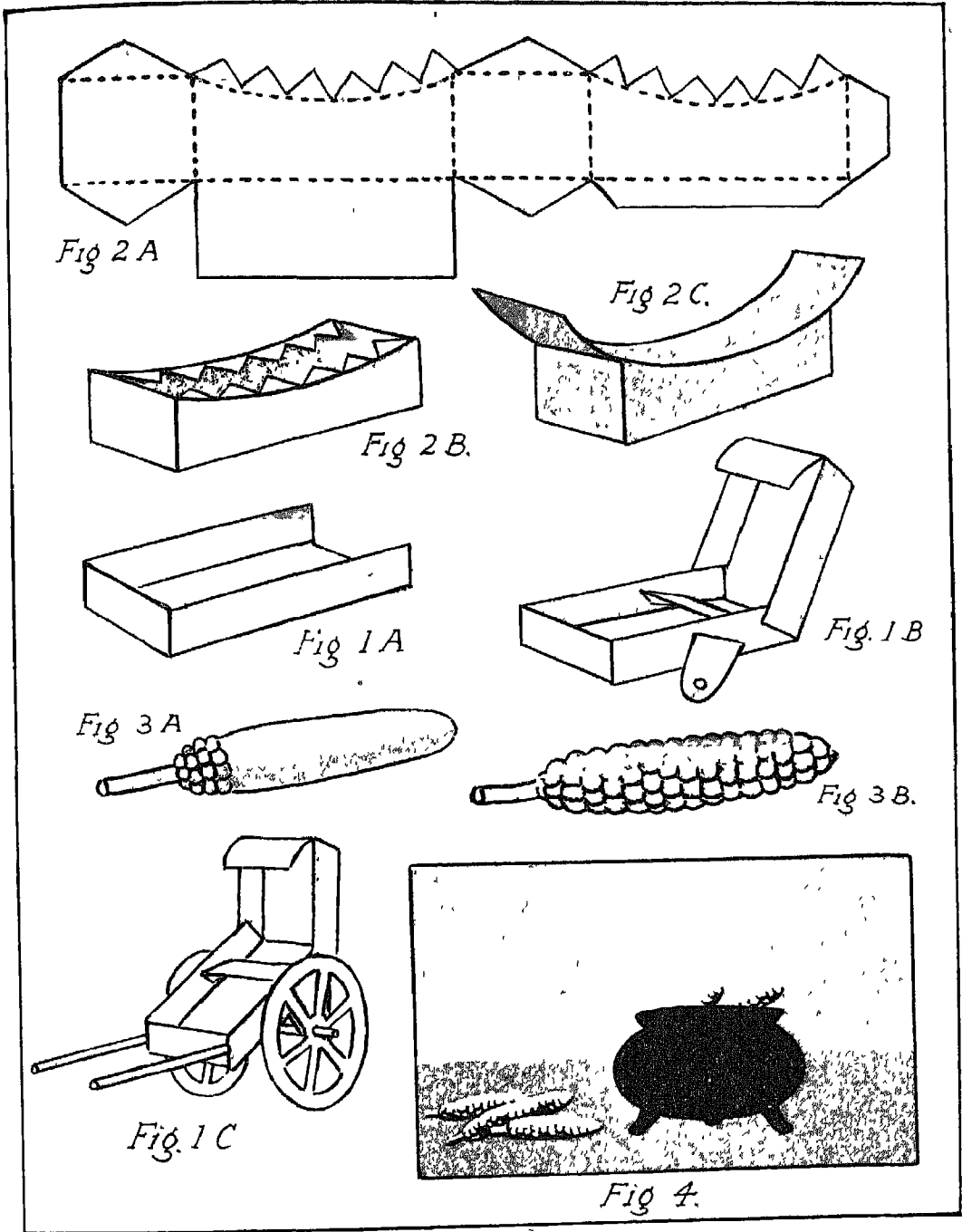



PLATE III

FIG 1 RICKSHA FROM MATCH BOXES AND CARD
FIG 2 AN AFRICAN PILLOW IN CARD
FIG 3 PLASTIC MODEL OF A MEALIE COB
FIG. 4 PAPER-CUTTING—GROUP OF MEALIE COBS AND POT

AFRICA. IV.

Agriculture is an important industry in South Africa. The farms are usually situated at wide intervals apart The accompanying plate shows a co-operative group project, based largely on the Class Picture No 91, which illustrates the grape harvest in South Africa, and shows an African farmhouse with an appropriate background and setting.

The first task is the construction of the farmhouse. A glance at the sketches on the opposite page will show that the farmhouse is a modification of the simple house shape. In the earlier handwork lessons of the course the children have been trained to plan a house shape, and this one forms a model suitable for the third year's work. Further complications occur in this particular model, and the difficulty of fitting chimneys presents a new problem.

Fig 1 A shows the fundamental structure of the house. In its construction, two points must be borne in mind. firstly, the house must be rather more elongated than the usual shape; secondly, care must be taken to ensure that the angles of the roof are 45°, for if this is not so the chimney breasts will not fit accurately. The junior teacher may lead the children to appreciate the significance of an angle of 45° by allowing them to make their own set squares from a square of folded paper, or by distributing set squares to the children.

A piece of rough paper is cut exactly to the dimensions of the rectangular front of the house, and is folded in halves. A considerably larger sheet of paper is also folded in halves, and the first piece is used as a pattern, the size of which is then drawn on the larger sheet Upon this the decorative central part of the house front is developed, Fig. 1 B. The complete shape is cut out, opened, and transferred to a sheet of cardboard, on which it is used as a pattern. This pattern, with its symmetrical sides, is pencilled on the cardboard, and the flat shape is then cut out in card and stuck to the front of the house.

The ends of the gables are produced in exactly the same manner, Fig. 1 C. First the exact shape of the end of the house is cut out in paper, which is then folded in halves. The shape is drawn on a larger folded paper and the decorative portion is built upon it. Finally, the shape on the larger paper is cut and opened out for tracing on a flat card. It must be noticed that the ends of the house project on both sides as well as over the roof The dotted lines in the diagram (Fig. 1 C) indicate the actual dimensions of the end of the house shown in Fig. 1 A

The base of the chimney breasts (Fig 1 E) will fit the roof exactly if it is made with an angle of 45°, for the dotted lines which mark the folding of the fixing flaps at the base of the chimney breasts are also made at an angle of 45°. Two chimney pots may be added in clay or paper, Fig. 1 F.

The farmhouse is painted pale drab, Chinese white, and brown, with a red roof and blue chimneys. The windows may be either painted or stuck on; they are made blue with green shutters

The silo (Fig. 2 A) is a cylinder of corrugated paper, held together with small paper fasteners (size 000) and afterwards painted drab. Its top is closed with a disc of card, held in position by small triangular flaps, Fig. 2 B.

Fig 3 shows how the constituents of the project are grouped in a big box lid. Walls, a gateway, one or two small outhouses, some trees and foliage, and a pastel background are added. The path must receive a dressing of orange and brown pastel dust, and the surrounding area is coated with green pastel dust

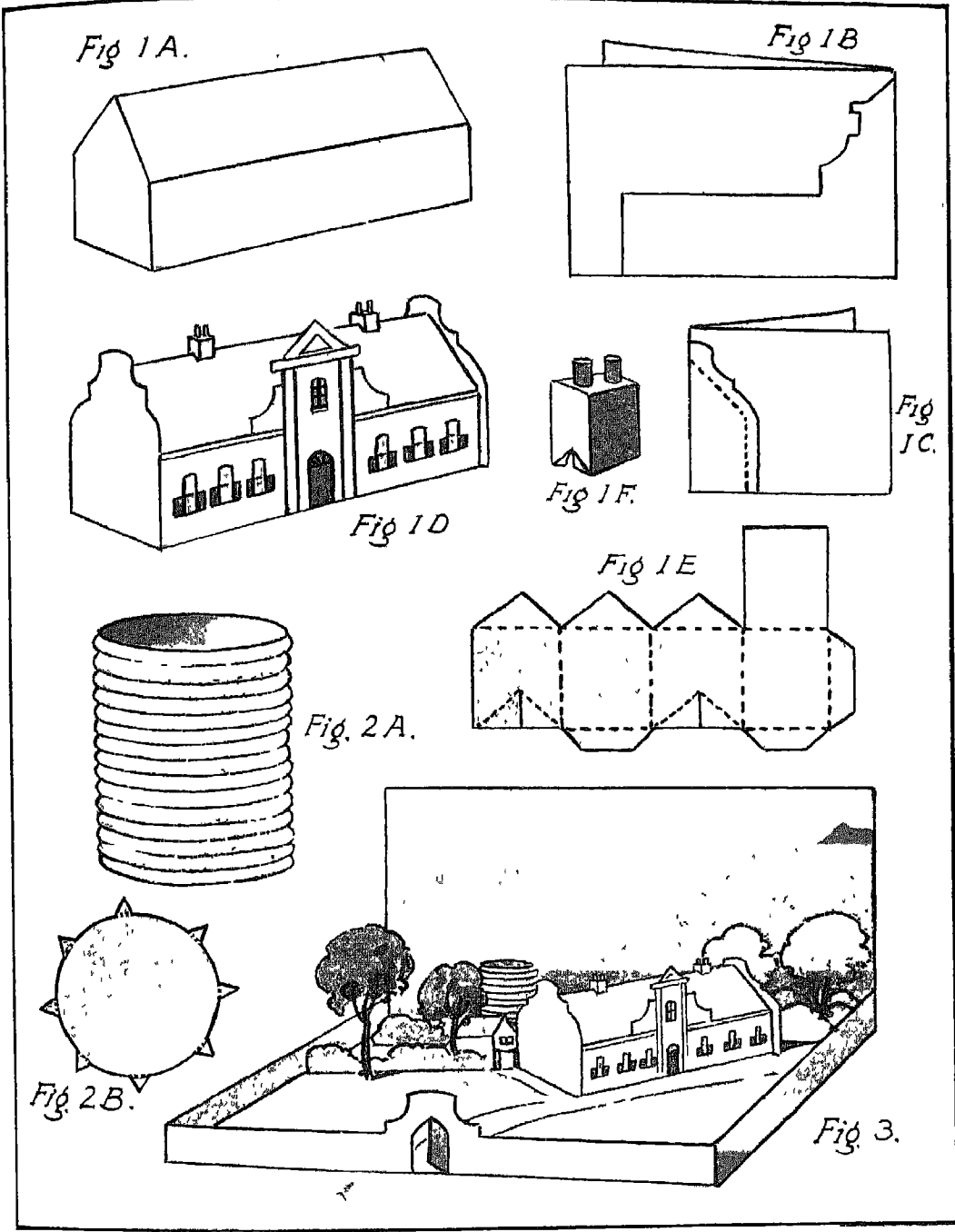



PLATE IV

A SOUTH AFRICAN FARM—A CO-OPERATIVE GROUP INTRODUCING WORK IN PAPER AND CARD

FIG 1 THE FARMHOUSE
FIG 2 THE SILO
FIG 3 THE COMPLETE FARM

INDIA. I.

From the study of Africa, the children pass on to the vast country of India and Pakistan They learn that rice and millet form the staple foods of the Indian peoples In the Class Pictures Nos 89 and 102 the children have seen the preparation of meal from grain and a primitive form of pestle and mortar Reference should be made to the primitive mills which the children modelled during their first year's work (see Vol I, page 111), in which one stone was rolled upon another for the purpose of grinding corn.

The first exercise shown on the accompanying plate is the making of an Indian mortar and pestle in clay The pestle (Fig 1 A) is made first In order to preserve its regular shape, it is made from a single mass of clay which is rolled on the modelling board with the tips of the fingers. As the roll lengthens, the fingers should gradually be more widely spread out. When the rod has attained the required size and shape, the forefinger should be placed in the centre of the rod and pressed down while still rolling. In this way the hollow which is used for gripping the pestle is made.

A simple mortar is seen in Fig. 1 B. It is constructed by rolling a mass of clay on the board; each end of the roll is then gently pressed in turn to make a short thick cylinder. While the cylinder is being rotated by the left hand, the little finger of the right hand should be used to make a circular depression, which is shown by the dotted lines in the sketch To produce the simple decorative band, the cylinder is placed on its side and slowly rolled across the board while two light cuts are made by the edge of the modelling tool which is held in a horizontal position. A few tiny pellets of clay, or indentations from the point of the tool are used to complete the model. A more elaborate mortar for grain is seen in Fig. 1 C. This is modelled by rotating it in the left hand, shaping the curved sides as the work continues.

The children might be shown the illustration of a primitive Indian well on page 602 The model shown in the plate is built upon a boot box cut in the manner shown in Fig. 2 E. First of all, two supports must be planned. A narrow pattern (Fig 2 A) is cut out in paper and is placed on a sheet of card, four outlines of the pattern are drawn on the card to produce the shape seen in Fig. 2 B. (The width at the base of the figure should be slightly less than the width of the lid of the boot box.) Two of these supports are joined by means of a piece of wood as seen in Fig. 2 C. On to the top of the horizontal bar are stuck two pieces of card bent at right angles; these are pierced on the uprights to receive a wire axle. Fig. 2 D shows how a simple pulley may be made from a piece of thick card and two pieces of thin card. (If desired, a Meccano pulley may be used) The box is cut as shown in Fig. 2 E, and provided with flaps. A long piece of card will be required for the slope, and the cut lid is used for the end A piece of thread is provided with a clay bucket and passed over the pulley (Fig 2 F); the other end of the thread is fixed to two cut-outs of oxen, which are shown in Vol. I., page 519

Fig 3 shows an attractive Indian donkey boy This is a cut-out which is to be traced on thin card and coloured.

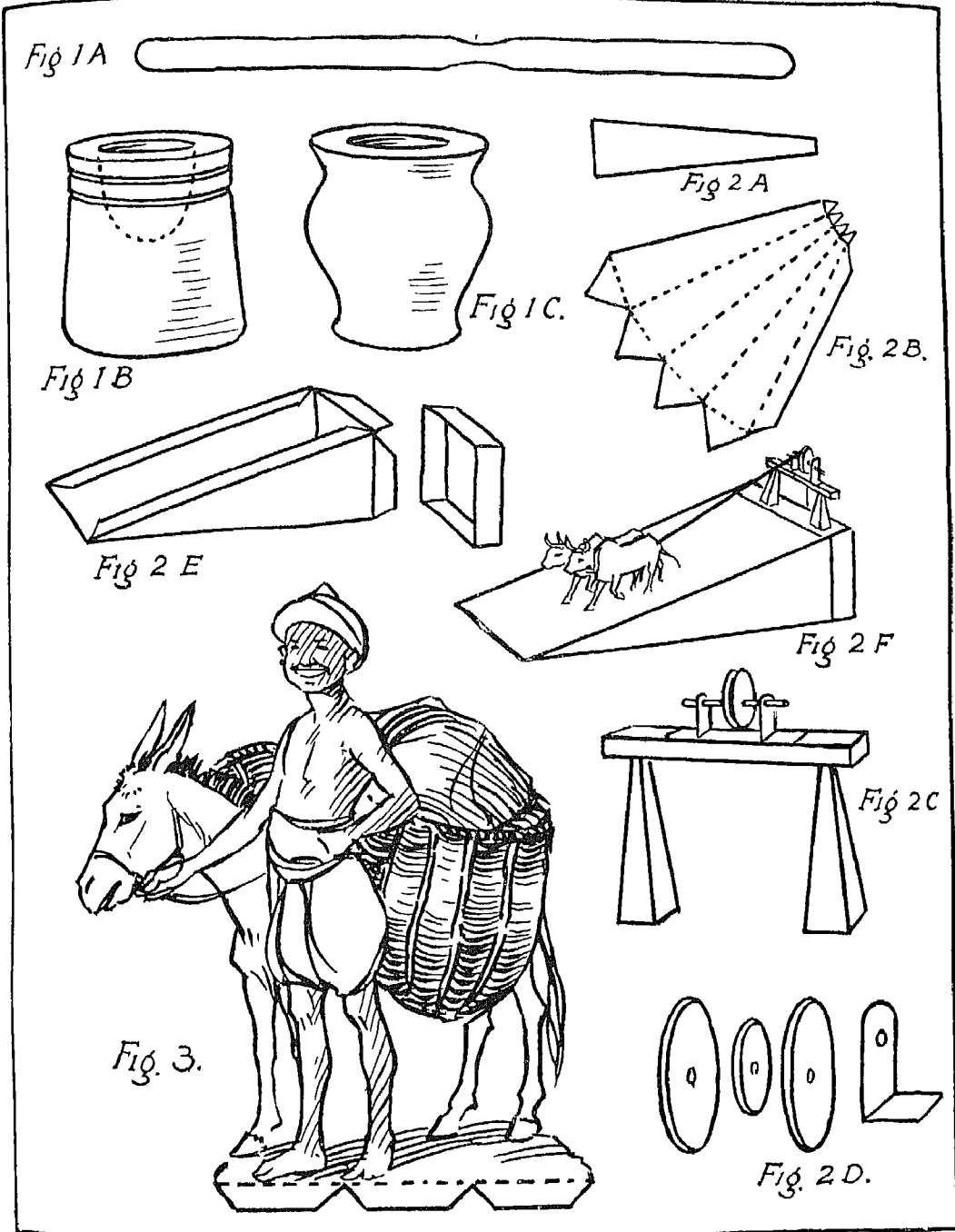



PLATE V

Fig 1 Plastic Models of Mortar and Pestle for Pounding Rice
Fig 2 Indian Well Project from Card and a Cardboard Box
Fig 3 Cut-out—Indian Donkey Boy

INDIA. II.

The illustration on page 584 shows shops which are typical of the native shops in India. This illustration is used as a basis for a co-operative group model, in which the majority of the children of the class can take part. In making the model the children should notice the difference between it and the European shops. When complete, the model will be found useful to the teacher of geography in the first year, and should be lent to the first year's class for inspection.

As shown in Fig 1 A, the basis of the model is a cardboard box placed on one side. The top side is cut right away, and the two shorter sides are cut carefully away at an angle, as seen in the diagram. Thin cardboard flaps, about 1 in wide, are stuck to all the cut edges to project as shown. The flaps are simply made by folding strips along the middle line, and gumming down one half of the strip. Two or three large cardboard lids are inverted one on top of the other, and the box is glued to the topmost lid

Next, the front of the shop must be planned. This must be exactly the same length as the box front, and as high as the short cut edges, Fig. 1 B. A doorway and windows are cut out from the front, the doorway has gummed strips of coloured paper stuck round it, and the window has a brightly tinted curtain of bright yellow or red material fixed along its top edge by means of tiny paper fasteners. Behind the lower edge of the window a horizontal bench is fitted, and the whole shop front is stuck to the front flaps of the cut box. A large sheet of card is fixed to the top of the box, so that it projects well from the sides. It is given a liberal dressing of adhesive and then covered with bits of straw, raffia and grass.

A native sunshade is made by drawing concentric circles on a sheet of stout paper, and colouring the alternate bands red and yellow, Fig 2 A A segment is cut from the circle, and a flap is left (which must *not* be scored or bent in the making). The shape is fixed upon a kindergarten stick and finished off with a clay or plasticine pellet for the knob, Fig 2 B.

A number of small circular baskets are woven by the children in coiled raffia work (Fig. 3), using "lazy squaw" stitch with brightly coloured raffia. Other children may weave small rectangular mats on cardboard looms

A long carpet for the steps of the shop (Fig 4) provides an exercise in paper appliqué work The carpet is a strip of bright yellow paper decorated with rows of small red squares stuck on it

The cut-out of the Indian shopkeeper is tinted in bright colours (Fig. 5), and placed at the right of the shop front.

Now comes the most pleasing task of all—assembling the group The sunshade is set up, the carpet and rugs are laid; the baskets are filled with clay produce, some native pottery is arranged here and there, and pieces of brightly tinted material are fixed to the sides of the shop, which are painted cream or yellow Sand may be strewn over the box lids which form the steps. As much colour as possible should be given to the group, so that a genuine Eastern effect may be obtained

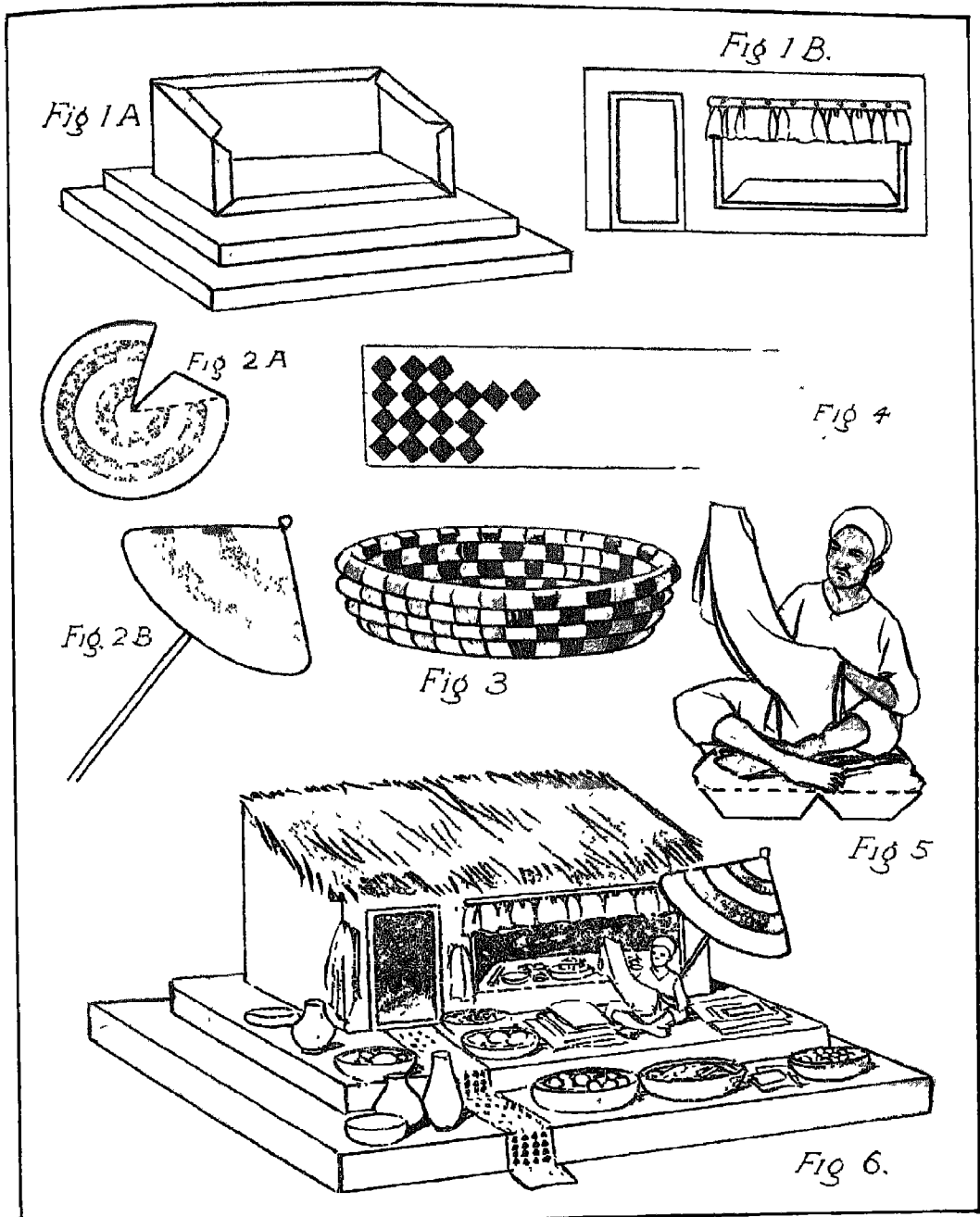



PLATE VI

INDIAN BAZAAR PROJECT

FIG 1 INDIAN SHOP—FROM A BOOT BOX
FIG 2 NATIVE SUNSHADE IN STOUT PAPER
FIG 3 INDIAN BASKET IN RAFFIA
FIG 4 CARPET FOR THE SHOP IN PAPER APPLIQUÉ
FIG 5 CUT-OUT OF AN INDIAN SHOPKEEPER
FIG 6 THE ASSEMBLED GROUP

INDIA. III.

The first exercise in this lesson is the making of a group project of Burmese sailing boats in paper-cutting. These boats are illustrated in the geography section of Vol I., page 456. Fig. 1 shows how the idea may be worked out. Along one side of the room a strip of paper long enough to form a frieze is fixed. This strip, which should be about 1 ft. wide, may be made up of lengths of dark pastel paper, or a continuous length of plain wall paper. The upper two-thirds of the strip should be tinted bright blue to represent the sky, and the lower third pale green, for the sea

The children should next prepare their boat shapes in free-cutting, each child making a fairly large boat and a small one as well. As shown in the diagram, each boat is really composed of four portions,—the boat shape proper, a tiny flag and two picturesque sails. It is suggested that red gummed paper should be used for the flag, orange paper for the two sails, and black or very dark brown for the boat shapes. When the boats have been completed, they must be assembled in an artistic manner on the frieze. The boats will not necessarily be of the same size; the larger ones should be mounted on the lower part of the green area, while the smaller ones should be placed in the intervening spaces higher up on the sea portion, so giving the effect of perspective. When the frieze is complete, the teacher should add the tiny portions of mast with black pastel or paint

An illustration of a typical bullock wagon commonly used in Ceylon is included in Class Picture No 68 The making of such a wagon will provide a useful handwork exercise for the children and give them an opportunity for developing a new shape. Fig. 2 A shows the planning of the wagon proper. The children should be given squared paper on which to make the plan, as the angles of the corners may present some difficulty to them The base of the plan is a rectangle which is shown by the dotted lines, and is made 4 in by 3 in. A 1 in border is added round the rectangle. In order to produce the sloping sides of the wagon, the middle points of the two outside edges of the square at each corner are marked, and the points are joined to the corner of the central rectangle as shown One of the sloping edges at each corner is joined up to produce a triangular fixing flap, and the front and back edges of the wagon are slightly curved. While the shape is still lying flat it would be wise to let the children draw the framework of the wagon in pencil. In the diagram, the continuous lines are to be cut, the dotted lines are to be scored and folded. When the shape is bent up and the flaps are stuck the result is like a tray with sloping sides. The large canopy, which acts as a protection from the rain and sun, must next be added. This is cut out in paper, of the shape shown in Fig 2 B, and fixed slightly at an angle to give a wider space to the front of the wagon. The flaps of this canopy do not require to be scored or folded. Finally, two stout twigs are cut and bound together with string, to form the wagon pole. A piece of stout wire may be stuck through the front of the cross-piece Wheels are added, the whole is painted brown and orange, and raffia is stuck to the canopy, Fig 2 E.

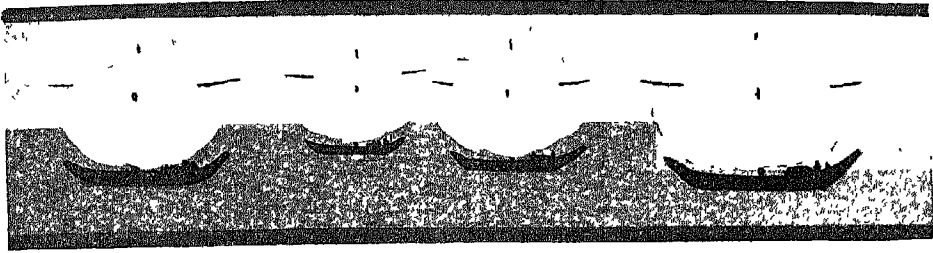
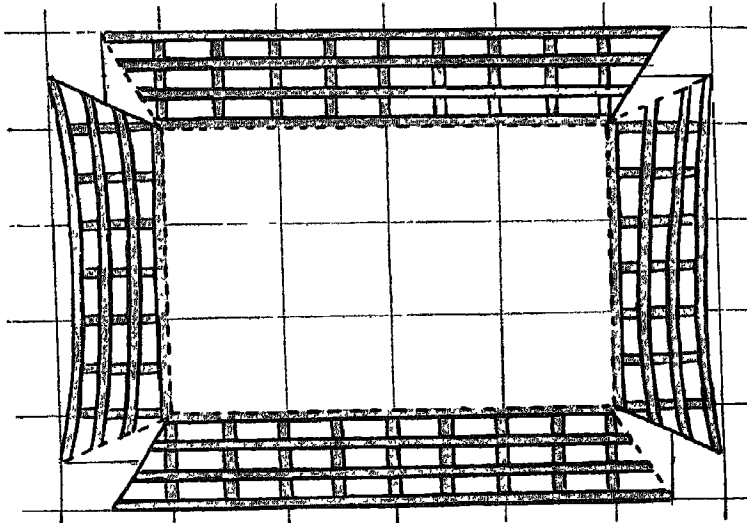
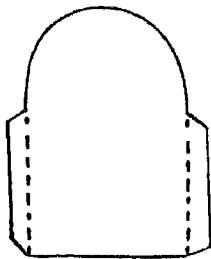
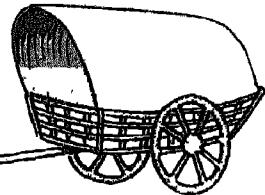
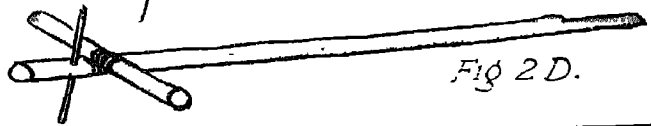
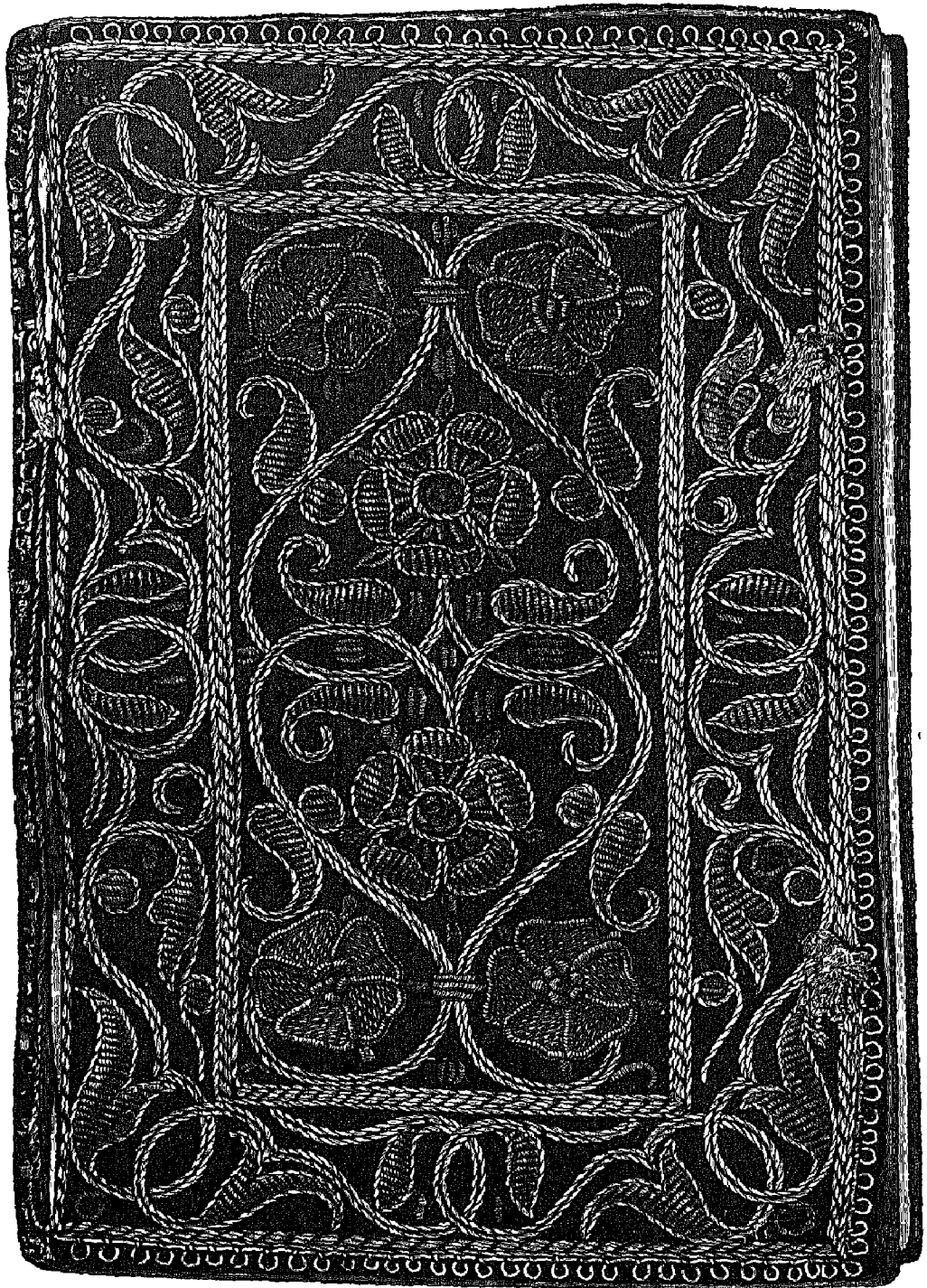
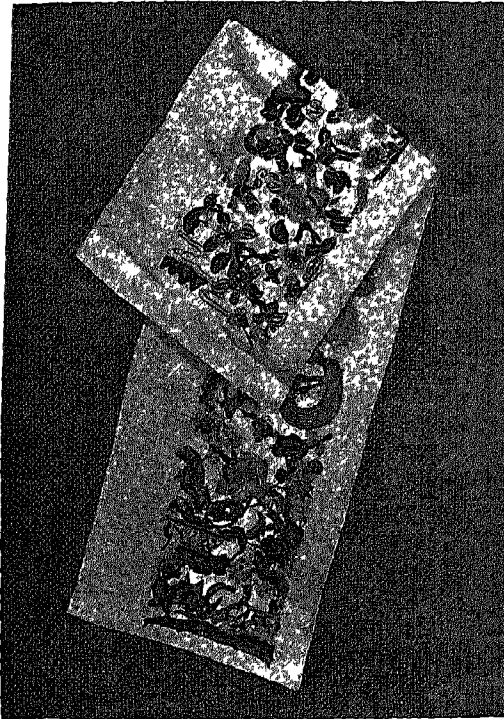
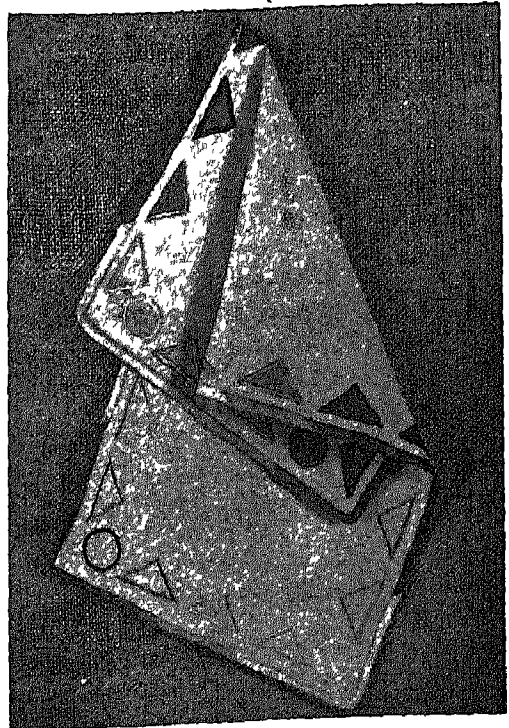



PLATE VII

FIG I PAPER-CUTTING PROJECT—FRIEZE OF BURMESE BOATS
FIG 2 BURMESE BULLOCK WAGON IN THIN CARD

THE TEACHING OF DECORATIVE NEEDLEWORK IN THE PRIMARY SCHOOL

Book Cover said to have been Worked by Queen Elizabeth
(British Museum)

A THREE YEARS' COURSE OF DECORATIVE NEEDLEWORK FOR CHILDREN FROM EIGHT TO ELEVEN YEARS OF AGE

Chinese Mandarin Sleeve Piece

Tray Cloth in Modern Appliqué

THE course of decorative needlework set out in these volumes begins with the second year in the primary school (see Vol II.), and is intended to cover work for a period of three years. In the following pages the work for the second year of the course of decorative needlework is given.

GENERAL INTRODUCTION

The work suggested for this year's decorative needlework is designed to meet the needs of a further development in the child's ability. Having now acquired some technique, the child's mind has leisure and energy to plan out the work and calculate accurately

Right and wrong sides.—The worker must first consider that a piece of needlework has two sides. These two sides have been called right and wrong, and frequently in a piece of work the difference between the sides is far too marked

Historic embroidery.—The embroideries of olden days were used for very different purposes from those of modern work; generally speaking, they were not intended to be washed, and would not wash. Pasting the back of some types of embroidery helped to tidy up loose ends as well as to make the work firm. Some embroideries are still pasted on the back when finished, the Chinese Mandarin Sleeve Piece, shown in the photograph, with both the right and wrong sides visible, has been treated in this manner. The wrong side has nothing in common with the beauty of the right side, for the back of the embroidery in this case is entirely covered when the sleeve piece is in use The colours used in the embroidery are not fast, because the sleeve piece is not intended to be washed Tapestries, Church vestments and altar pieces were the chief articles embroidered by our ancestors. In the case of hangings, only one side showed; a sumptuous lining to the vestments covered all untidiness on the wrong side of the material. Later, when embroideresses turned their attention to domestic needlework, linings were again used, or the embroidery was framed, or used for upholstery, therefore the back of the work still did not matter,—it did not show and it did not require to be cleaned.

Modern embroidery.—Embroidery of to-day is largely devoted to household articles on which it is desirable to have two presentable sides, linings are unsatisfactory, because the majority of articles must make the acquaintance of the washing-tub. Additional constructive thinking is required to combine beauty with utility. The second photograph shows a tray cloth in modern appliqué work, for which scraps of linen have been utilised. The stitches on the back of the work repeat in outline the pattern that appears in solid colour on the right side This piece of work is intended for hard and constant use, and all the colours are fast washing colours.

Decoration and use.—All the needlework that we are now considering is intended for constant household use under the hygienic methods of the twentieth century, sooner or later it will be washed and ironed. To treat a piece of historic needlework in the same way would be vandalism the materials used, such as velvet, would be ruined; the precious stones, the gold and silver, would make holes in the material, some of the colours would run and the padding would become flattened,—this was not the usage for which the work was intended It was meant for decoration pure and simple, not for use in its strictest sense. It was intended to last for generations, the colours mellowing side by side with the ageing beams of the house in which it hung. A piece of tapestry might be started by one generation and finished by a later one, as in the case of some Eastern carpets, the embroidery might be the life work of several people, and not infrequently it was the historic record of the period in which it was made. Life to-day moves more quickly and needlework has altered with the passage of time, but though the quantity may change, the quality should remain the same.

Finishing and pressing.—In the case of heavily decorated material, and in modern canvas work, the finished article is usually damped and stretched The edges of the material which are pulled out of shape by this process are in these cases covered, either by the woodwork of the upholstered article, or by a lining. In modern embroidery, however, a large part of the background material is usually left undecorated, and the edges of the finished article remain exposed. Therefore, as the work is intended to be laundered, it is pressed with an iron for finishing, which does not spoil the shape of the edges of the work.

Materials for the second year's work.—Some of the stitches, materials and cottons, and also the needles, used in this year's work, are finer than those used in the previous year. A few new stitches have

been introduced, these are all illustrated, with the exception of the stitch commonly known as "lazy daisy," which is too well known to require demonstration Gradations of tone are still avoided, clear definite colours being supplied to the children. The sampler used in the previous year's work is probably full by this time, and a fresh one will be needed for experimenting with new stitches and treatments.

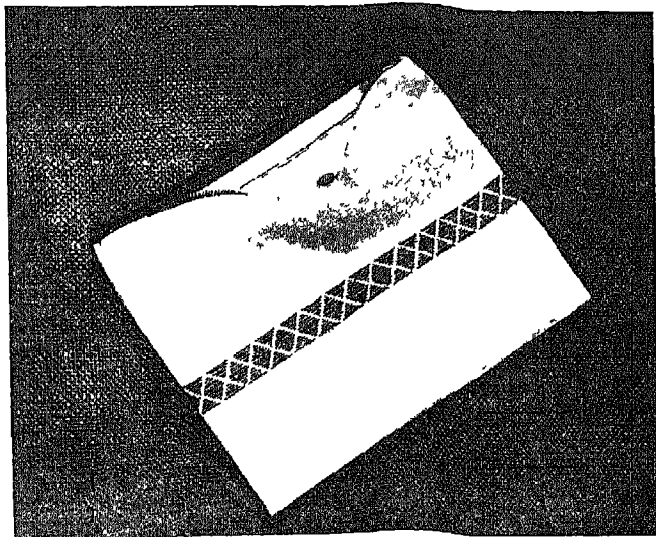
I. A BAG TO HOLD A TRAVELLING OUTFIT

THE articles to be made in the first four lessons of this year's work have been designed to be useful on long school journeys or for camping.

The travelling bag and its contents require further developments of stitches with which the children are already familiar, as well as an additional stitch. The band of decoration on the bag shows tack stitching carried to the stage when it resembles the darned work mentioned in Chapter I. of the previous year's course.

The complete travelling outfit consists of the following articles: the bag, a face cloth, a toothbrush holder, and a small face or guest towel These articles will be dealt with in four separate lessons The order of making the four articles is a matter of individual choice; when the same stitch is used on two articles, reference is given to the chapter in which the stitch was taught.

Both pattern darning and double darning are used in the making of the bag. Double darning, in a very simple form, is used to attach the tape bindings to the waterproof lining, but for the band of decoration on the bag itself, simple pattern darning is used, as this is easier to execute than double darning Double darning has been used on the lining in preference to back stitch, because a reversible stitch is required, although as it is only executed in a straight line it hardly deserves its name.

The bag may be decorated by a band as shown in the photograph, Fig I, or the entire surface may be covered with an all-over pattern, the amount of decoration depending on the speed, ability and individual preference of the worker. Persian darned work, in the form of nakshe, or women's trouserings, in which the whole surface of the material is embroidered, is shown in the Victoria and Albert Museum.

BAG TO HOLD A TRAVELLING OUTFIT (FIG I)

The method of building up simple patterns for darning is illustrated in Figs 2, 3, 4, 5, 6 and 7. Fig. 2 shows the border used on the bag; Fig. 3 shows the same border extended for use as an all-over pattern. Fig 4 shows a pattern which uses the background as a definite part of the pattern Figs 5, 6 and 7 show variations of the theme used in Fig. 4

No additions to the tool pochette will be required for this lesson

The following classroom tools and materials will be needed

Linen, crash, or some similar material in which the threads are easily seen.

Waterproof material for the lining

D.M C *coton à broder*, No. 16, in pure, strong colours.

Large cutting-out scissors

White tape, 1 in wide

Zip fasteners, 10 in. long.

Tacking cotton

D.M C. No. 40 sewing cotton of the same colour as the material.

HB pencils

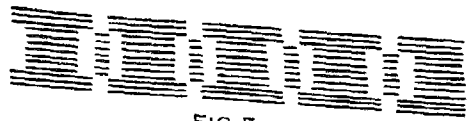
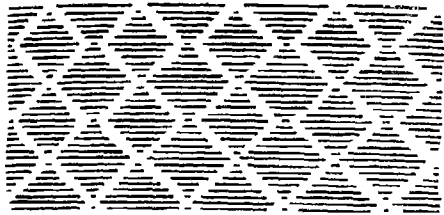
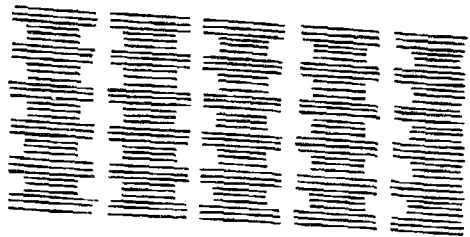
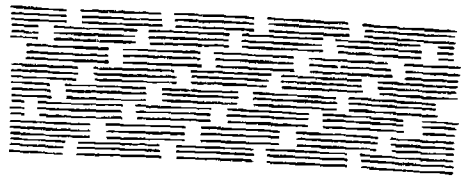
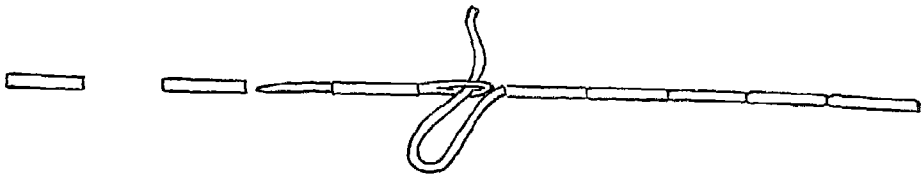
Rulers and squared paper.

The bag is made from a piece of natural linen, 12 in. by 18 in. The waterproof lining is made from a piece of material 10½ in. by 16½ in The lining is made smaller than its decorated cover so that it will fit easily and so permit the fastener to work smoothly. Any light weight waterproof material may be used The cover and lining are made separately and tacked together when finished to allow for removal when washing is necessary.

The first step is the decoration of the outer cover of the bag. Designs suitable for the decoration are prepared and the design chosen is drawn to scale on squared paper for use as a working drawing

The bag illustrated in Fig 1 is decorated with two bands of darning across the narrow width of the material, that is, one band of decoration on each side The first row of stitches in the decoration is placed ½ in. below the quarter of the length of material, that is 5 in from each end.

Decorative darning consists of running stitches of definite length taken backwards and forwards across the length to be decorated Care should be taken that the long stitches are not made too long or they will look clumsy and are liable to catch and pull when the article is in use. The ultimate success of darning depends on the *first* row of stitches. The long stitch is ⅝ in. long, and five threads are picked up between each stitch. The number of threads that make up ⅝ in should be counted, but this is too trying for young children. A guider, such as was illustrated in Lesson I. of the previous year, will serve for measuring the long stitches; then it is necessary to pay close attention only to the five threads between the long stitches and to keep the stitches between the same two threads. Five threads are picked up in the top row instead of the more usual four, to allow for the single thread that is picked up in the second row of stitches to form the point of the diamond From the second row till the last row but one, four threads are picked up, the length of the stitches decreasing and increasing by two threads each time In the last row of stitches five threads are again picked up. Material in which it is easy to distinguish threads should be used to avoid eye strain and give regular work. The easiest and most effective way of joining threads is by tying the old and new threads together firmly and cutting off the ends a little distance from the knot, other methods of joining are liable to show on the right side and be destructive to the regularity of the pattern. Needles should be large enough to carry the thread without fraying.

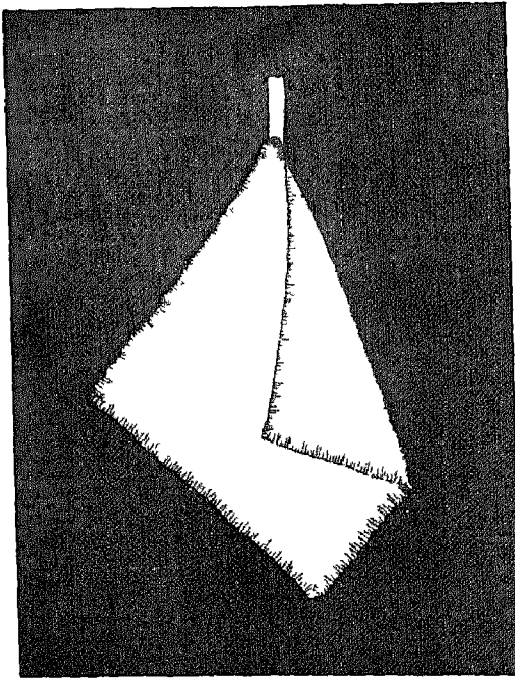
When the decoration is completed the sides of the bag are joined together with a single seam ⅜ in. wide using running stitches and an occasional back stitch The turning used on the top of the bag is the same as the width of the braid on the zip fastener. This turning is tacked and hemmed on to the fastener from the right side, care should

BUILDING SIMPLE PATTERNS FOR DARNING

be taken that the linen does not come too near the fastener or it will prevent smooth running. When the fastener has been sewn in, the top turning and the braid on the fastener are top-sewn together to prevent the linen from fraying, the sides of the bag are also top-sewn, singly.

The waterproof lining is cut exactly to the size required, as the sides are bound together with tape to avoid bulkiness. The lining measures 10½ in by 16½ in. This material is most easily cut accurately by measuring the size required, ruling pencil lines and cutting by these The two short sides of the waterproof are bound first. These are done singly, as they form the opening When these are finished the waterproof is folded in half and the edges are bound together; the ends of the tape are top-sewn. Binding will be much easier if the tape is first folded in half and pressed before starting work The stitch used for binding is illustrated in Fig. 8. Thick cotton has been used for stitching on the tape, as it will fill up the holes made by the needle. Stitches should not be too small or they may cut the waterproof

The lining, when finished, is tacked to the braid on the fastener ⅜ in below the fastener itself Lining and holder can then easily be separated when required.

Time 6 periods

II. A USE OF GRADUATED BLANKET STITCH

FACE CLOTH WITH GRADUATED BLANKET STITCH (FIG 1)

REGULAR blanket stitch and scalloping have been dealt with in previous lessons; this time graduated blanket stitch, forming simple rhythms, is the form of decoration used To keep this kind of blanket stitch regular calls for greater skill than was needed in the earlier lessons, especially since it is done on Turkey towelling on which the threads of the material are of little or no help in keeping straight

No additions to the tool pochette are required.

The following classroom tools and materials will be needed.

Turkey towelling
D M C *coton à broder* or *coton perle* No 8 in pure colours.
Tacking cotton
White tape, ⅜ in wide

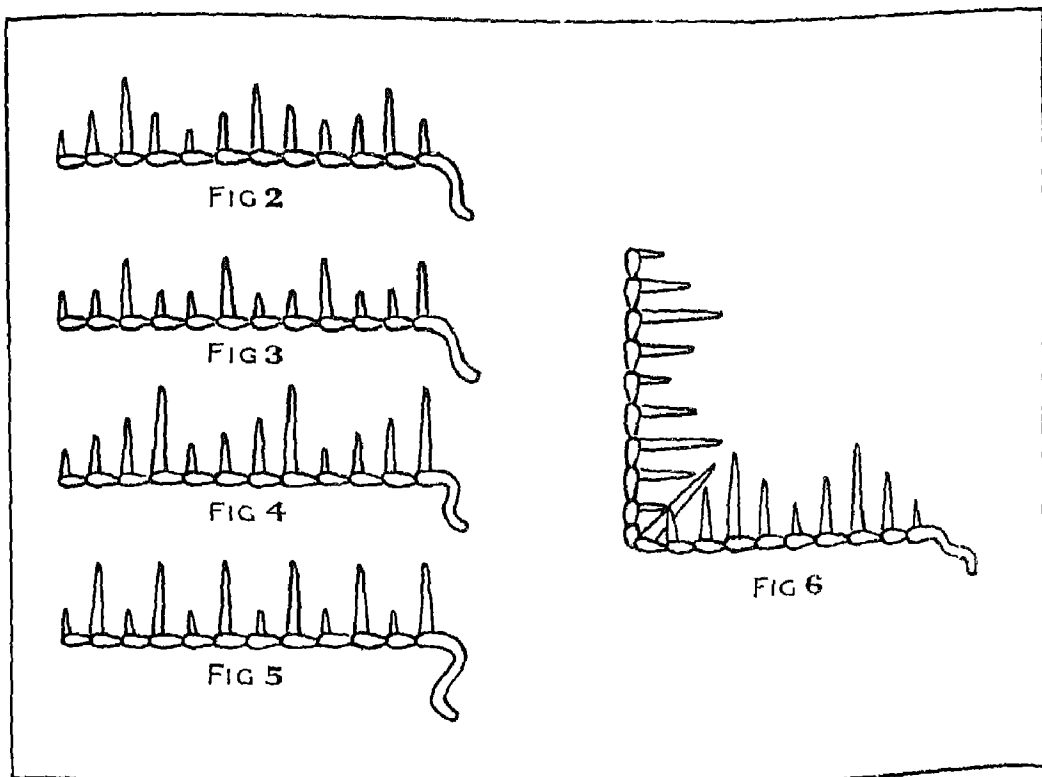
The piece of material used for the face cloth measures 10 in. square The narrowest possible single hem (¼ in. or less) is tacked down all round the material, using medium sized stitches. This tacking may be left in

as it is difficult to take out after the blanket stitching is finished and it helps to keep the hem in place, while being in no way unsightly If one side of the material is selvedge, this need not be turned in. Previously blanket stitch has been worked over the raw edge of the material to avoid clumsiness, but in this case the material is more loosely woven, and would fray badly and be difficult to handle while working, it would also wear badly The colours used for blanket stitch in this lesson *must* be fast colours, or they will run and soon spoil the look of the article

Fig 2 shows the arrangement of blanket stitch used on the face cloth illustrated in Fig. 1. Figs 3, 4 and 5 suggest a few more variations.

The method used for turning a corner is illustrated in Fig 6. The long stitch at the extreme corner is not worked round the outside of the material, but sewn into the very edge of it, as otherwise a stitch of this length is liable to slip out of place. The next stitch after the corner stitch helps to keep this long stitch in place, by being stitched over the bar of the long stitch. The stitches should be about $\frac{1}{8}$ in. apart.

The face cloth is finished off with a hanger made from a piece of white tape $4\frac{1}{2}$ in long. The tape is folded in half with a small piece turned in at one end, it is then slip stitched firmly on to one corner of the cloth on the wrong side.

Time 2 periods.

EXAMPLES OF GRADUATED BLANKET STITCH

III. A DECORATED GUEST TOWEL

IN Lesson II of the First Year's work, we used huckaback stitch. The weaving of the material and the fact that the raised threads lay in a position perpendicular to the hem, caused the majority of the patterns to take a form based on a diamond or a triangle. The same method of decoration is used in this lesson, but the raised threads of the material lie in the opposite direction, that is, parallel with the hem, this fact alters the character of the patterns that can be built by the use of these threads Whether the decoration takes the form of that used in this year's work or of that in the preceding year, depends on whether it is possible to cut the material with the threads lying in the direction desired. Narrow width huckaback, such as is used in the illustration shown in Fig. 1, can be bought with the threads running parallel with the cut edge of the material.

GUEST TOWEL DECORATED IN HUCKABACK STITCH (FIG 1)

The sampler illustrated in Fig. 2 shows some patterns that can be made. It will be noticed that a far greater variety of patterns is possible, but that they are also more difficult to work out and to execute The simplest way to work out these patterns is to regard one line of stitching (one colour) as a base on which to build the succeeding row or rows, until the desired effect is gained The plainest row of stitches acts as the base, except in the case of the last pattern on the sampler, here the straight line between the two rows of decoration is added last. In the fifth pattern on the sampler the upper portion of the square is formed by taking the needle through on to the wrong side at the end of one unit, and bringing it up again at the point where the new unit begins; this is done in order to avoid a double thread along two sides of the square In the first four patterns on the sampler there is a marked similarity in the first line of decoration that is put in; in other words they are built on similar bases These appear as the lighter threads in the photograph. Succeeding rows show distinct differences

The hemstitching used on the guest towel is finer than that worked on the hessian runner. It will be noticed that drawing threads in huckaback leaves a natural division between the threads and has the effect of giving a row of groups of threads. Each of these groups can be taken as a needleful when hemstitching. In the coarse material used for the runner, threads were counted for a definite purpose,—ordinarily threads should not be counted. It is very trying to the eyes to count threads in fine

material and the cultivation of judgment that will avoid counting should be a definite aim in hemstitching. Practice will enable the worker to pick up the same weight of threads each time without counting, and her working speed will be greater as a result. Counting threads on uneven material is a pitfall, as it is not the number of threads picked up that matters, but that these threads, fine or coarse, leave the same sized hole in the hem. Having learnt to hemstitch by "feel," a worker will not fall into the "counting" error, as she will have already learned to be guided by the spaces between the stitches.

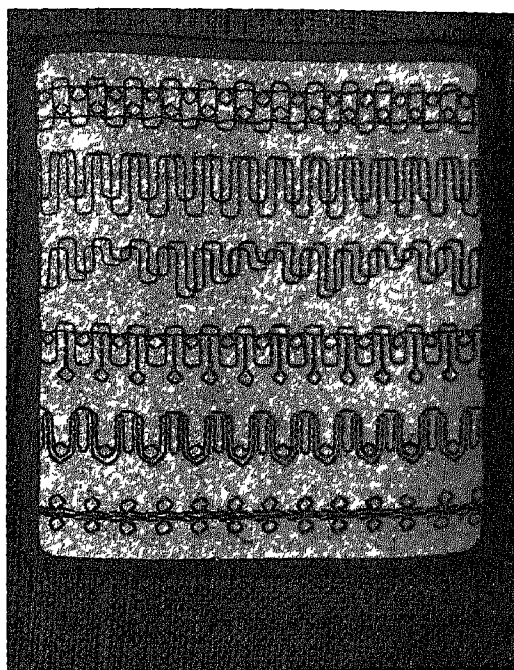
One addition is required to the tool pochette:

A piece of huckaback for a pattern sampler

The following classroom tools and materials are needed.

Fine huckaback, 15 in. wide
D.M.C. *coton perle* No. 8 in clear, fast colours
Tacking cotton.
No. 40 or 50 white sewing cotton.
Large cutting-out scissors

The towel illustrated in Fig 1 is made from a piece of Old Bleach huckaback, M 160, 15 in. wide. This material has the raised thread running parallel with the cut edge. The decoration is worked in pink D.M.C *coton perle*, Col. 3326 and blue Col 799. The length of material used is 27 in. Three threads are drawn, 2¾ in. in from each end to make the hem; this allows ¼ in. for turnings. Hemstitching washes and wears better if the threads are not drawn through the selvedge, but stop ¼ in. away from each selvedge.

The decoration is done as soon as the threads have been drawn. One or both ends of the towel may be decorated according to taste. The decorative thread nearest to the lowest drawn thread should be six threads away to leave a small space between

SAMPLER OF HUCKABACK STITCHING (FIG 2)

the hemstitching and the decoration Starting threads are run up and down a few of the threads on the back. The same method may be used for finishing off and starting new threads, but the most effective method for starting new threads is to tie the two threads together, provided the knots used are not slip knots. The starting and finishing threads will be covered when the hem is turned up.

When the decoration is completed, the hem is turned up and tacked into place. The ends of the hems are top-sewn, the hem is hemstitched top and bottom, and the little piece at the end of the hemstitching, where the threads were cut inside the selvedge, is buttonholed with white sewing cotton. The method of hemstitching is the same as that used in Lesson II.

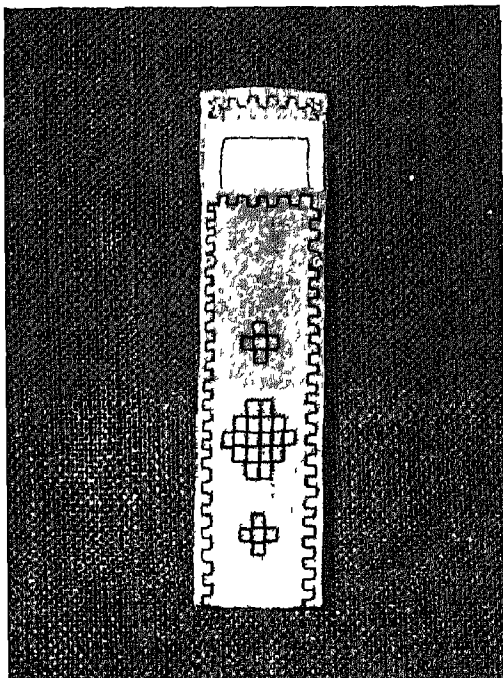
A small sampler, similar to the one illustrated in Fig. 2 should be made. On this children may work out their own designs, keeping in mind the width of hem

to be decorated; from the patterns invented they can choose the one they prefer to use as decoration for their own towel.

Linen creases badly while being hemstitched, so the towel will need pressing under a very wet cloth; afterwards it is ironed dry, first on the wrong and then on the right side.

Time 5 periods.

IV. A TOOTHBRUSH CASE

THIS lesson introduces the worker to another method of building up patterns by the use of stitches, a simple outline border and three motifs have been built up in this way. (See Fig. 1) The

TOOTHBRUSH CASE DECORATED IN DOUBLE RUNNING STITCH (FIG 1)

stitch used is double running The outstanding characteristic of this stitch is that when the work is finished both sides of the work are identical in appearance. As in the execution of darning, care must be taken that the stitches used are not too large; in fact, the largest stitches used in double running are smaller than the largest stitches used in darning. The first step in working is to outline the entire pattern in simple running stitch. This time, as much material is picked up on the needle as is covered by the thread—shown in Fig 5. When the whole pattern has been outlined in this way the worker doubles back on the track already made, and by taking the needle over where previously it went under, fills in the spaces left in the pattern The start of this operation is also illustrated in Fig 5. The most difficult feature of this form of decoration is planning out the number of stitches to complete the outline, and at the same time to bring the needle into the right position for filling in the spaces on the return journey; double threads or crossing at the back should not occur. The size of stitch used is controlled by the unit which will divide up the pattern most satisfactorily; in more advanced work it will be found that a uniform size of stitch throughout is neither necessary nor practicable.

Designs should be worked out on squared paper and then used as working drawings Fig 2 suggests some patterns for hems; Fig 4 suggests another type of pattern that might be used for the middle of the case.

There are no additions required for the tool pochette

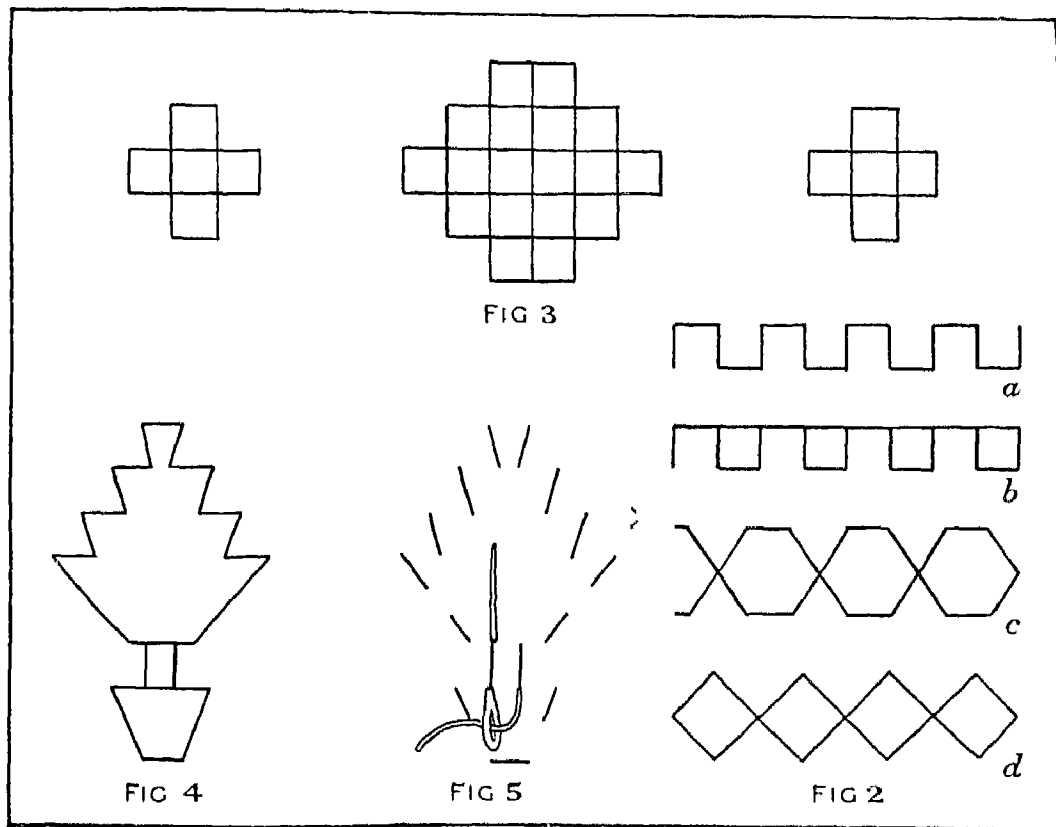
The following classroom tools and materials will be needed:

Linen, crash or some similar material having well defined threads

D.M C. *coton à broder* in strong, clear colours.

Waterproof material.
White tape, ¾ in. wide.
Dress fasteners.
Tacking cotton.
White sewing cotton, No 40
Squared paper.
Rulers.
HB pencils.

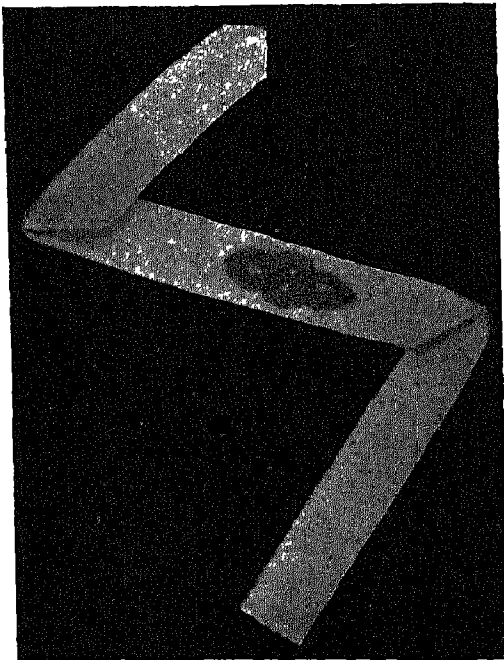
The cover of the toothbrush case is made from a piece of natural linen 18 in. by 3½ in. The patterns are worked in turkey red *coton à broder.* A hem ⅜ in. wide when finished is turned up all round the piece of linen and tacked. The turnings allowed are ¼ in. all round; this makes the holder 2¼ in. wide when finished. The width of the hems will be easier to measure with a guider notched at ⅜ in. than by using a tape measure. The corners should be finished off in the same way as in previous articles of similar construction.

The pattern on the hem (see Fig. 2a), is executed in the same way as is illustrated in Fig 5 In the hem there are two or three thicknesses of material which make it difficult to get both sides of the pattern exactly alike, this difficulty will not occur, however, when working on a single thickness of material. The corners of the pattern should be carefully planned while still a little distance away from them, so that they may work out evenly and the corners may match each other When the hem is finished the tacking should be *cut out* carefully. The position of the design on the case should be

DESIGNS WORKED IN DOUBLE RUNNING STITCH

carefully determined by measurement and put in by the method illustrated in Fig. 5 which shows the plan of working the pattern drawn in Fig. 4 Fig. 3 is the design used on the toothbrush cover The position and length of stitch can be determined by counting threads, but this method involves eye strain, while practice enables the worker to pick up an even amount of material in each needleful.

The strip of decorated material is now folded over $7\frac{1}{2}$ in. at one end to make the pocket, and places are marked for the fasteners The pocket is then unfolded and the fasteners are sewn on Fold up the pocket again, this time inside out, and top-sew the sides together, working from the opening towards the fold When the outer cover has been turned on to the right side again and pressed, it is then time to make the waterproof lining.

The waterproof used for the lining measures 16 in. by 2 in. It is made up in the same way as the lining for the outfit, except that a little flap is left for folding over the top. One end of the waterproof is bound with tape 1 in. wide, using *coton à broder* for stitching. Raw edges are left on this binding tape, as they will be covered when the sides of the lining are bound together. The bound end of the waterproof is folded over $7\frac{1}{4}$ in. thus leaving a flap measuring $1\frac{1}{2}$ in. The lining is next bound with tape starting from the fold and binding round both pocket and flap except for the bottom fold. The corners of the tape on the flap should be carefully mitred and sewn down but no material should be cut away. The tape is sewn to the waterproof by double darning stitches the same as in the lining for the outfit

Time: 4 periods

V. A METHOD OF DECORATING BELTS

A DECORATED BELT (FIG 1)

CHILDREN of to-day no longer wear the cumbersome woollen garments of even a decade ago, but cosy, woollen frocks are still necessities and can be made very attractive with a little labour on the part of their owners.

The article suggested in this lesson is a belt for a flannel frock The belt is made of the same material as the frock and is decorated by having a motif embroidered on the back. The *chic* effect of the Parisian gown is well known all over the world. The French dressmaker *never* forgets the back of a gown; sometimes her consideration may be for "line," sometimes it includes decoration. It is frequently some deft, inimitable touch, that raises one gown above its fellows and makes people say, "Ah! Parisian." Eccentricity is not *chic*. A gown may attract attention, but to attract attention does not

make a thing good Attention, like experience, may be both desirable and undesirable. The belt illustrated in Fig. 1 belongs to a plain flannel dress of the same colour as the belt, the only other colour used being green bindings of the same shade as the green in the embroidery. The belt will be finished off with a *plain* red or green buckle of the same colour as that of the wool in the embroidery. Belts of frocks already in use could be decorated if the children have not new frocks for which they wish to make belts, but in such cases the lining already in the belts should be unpicked and put back after the decoration is finished

In this lesson split stitch has been used for filling areas of background As its name suggests, the needle splits the thread with which it works. Split stitch is an old stitch and is frequently used in combination with other stitches, like chain stitch it is very flexible and can be used for surfaces where modelling is required. When finished, split stitch looks very like chain stitch; it is a little more difficult to execute than the latter but gives a more solid-looking result Split stitch should be worked in silk or wool, cotton is too fine, silk is too difficult to handle at this age, so wool only has been used

No further additions to the tool pochette are required.

The following classroom tools and materials will be needed:

Flannel, serge or some similar woollen material.

Silk, or some light weight material for lining the belt.

Pearsall's tapestry wools in clear, pure colours.

Sewing silk or D M.C. sewing cotton to match flannel and material for lining

Small size pointed needles, such as are used for Indian coiled basketry

Tacking cotton.

Large cutting-out scissors

Used carbon paper.

Compasses.

Squared paper ruled in $\frac{1}{8}$ in squares

Pencils, HB and 3 H.

The belt illustrated in Fig 1 is made from a piece of fawn dress flannel which measures 34 in. long and 3 in wide It is embroidered with tapestry wool red No. 6 and green No 80, and it is lined with a piece of Jap silk of a colour that tones with the flannel. The length and width of belts varies with the prevailing fashion. This belt, when finished, is 2 in wide The first thing to do after cutting the strip of flannel is to fold over one end and cut the point. When this is done, a single hem, $\frac{1}{2}$ in wide, should be turned down all round, tacked, and herringboned into place with cotton to match the flannel

The decoration of the belt is done next. In this lesson the design on the belt illustrated is the only one suggested The reason for this is that by this time the children have already been given enough experience of elementary design to permit of the exercise of their own originality Before the children attempt the construction of the design the following steps should be taken.

1 A belt should be placed on a child in the position in which it will be worn

2 The type of design suited to the purpose should be discussed, the children will readily agree that small, simple designs are required.

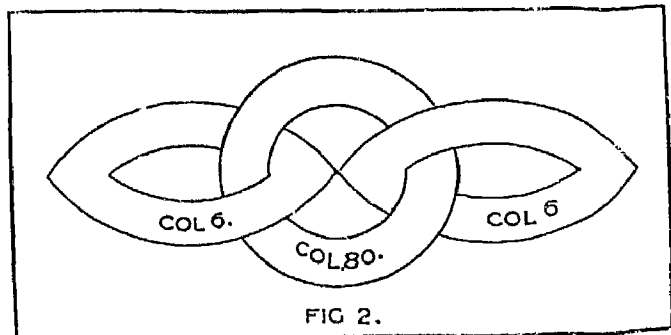



DIAGRAM OF DECORATION ON BELT

3 The width of the belt must be kept in mind; the design *must not* encroach on the boundary lines of the belt, or the decoration will look heavy and cramped, and will not show to advantage.

4. The designs used for stem and chain stitch should be recalled. It will be remembered that these stitches followed curves very gracefully. The same is true of the stitch about to be learned and used. Hence it is useful to make designs in which the lines are composed of circles or parts of circles

5. Designs should be made with compasses, on squared paper, and the most suitable productions chosen for working on belts. It should be remembered when making the designs that the embroidery will be done in *two colours only*. Tendencies to make intricate patterns are better discouraged; simple, bold designs are the only ones suitable for work with the materials used and on dresses of somewhat tailored lines.

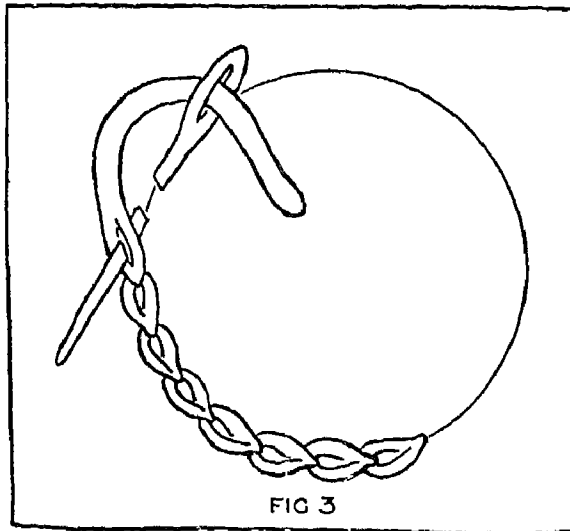
The design is traced on to the belt by the same method as has been used in previous lessons.

Split stitch is illustrated in Fig. 3 Sampler practice is essential in this stitch as it is more difficult to develop a rhythm in working split stitch than with any stitch suggested previously. The same rule applies with regard to the place at which to start working as in stem and chain stitch,—begin at the outside of the design.

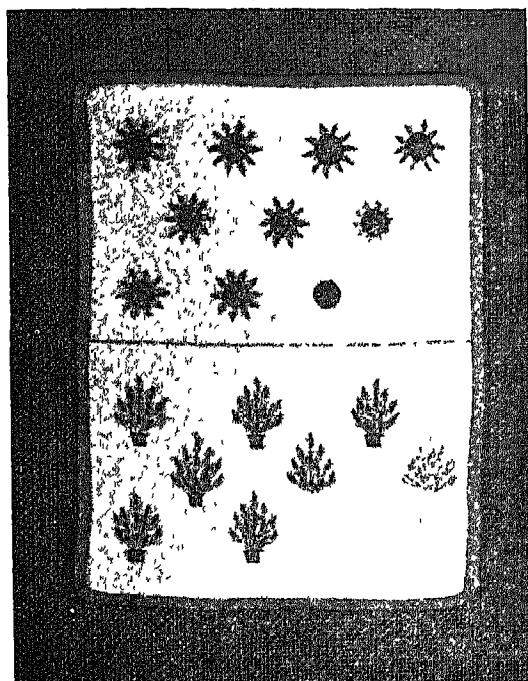
When the embroidery is finished, the belt should be pressed from the back with a damp cloth over it, it should then be ironed until it is dry.

The lining is cut smaller than the belt, it measures 33½ in. by 2½ in. The point having been cut on one end of the lining, it is turned in ⅜ in. all round; this leaves the lining 1¾ in. wide. The lining is then pinned and tacked on to the back of the belt ⅛ in. below the edge of the belt; this is to prevent the lining from showing when the belt is worn The lining should then be slip stitched to the belt, using a No. 5 ordinary sewing needle and thread to match the lining.

The belt is quite finished when it has been pressed again from the back This pressing is to straighten the lining and make the whole belt look well-finished.

Time · 3 periods, if design is done in the drawing lesson and sampler practice in odd moments.

THE METHOD OF WORKING SPLIT STITCH

VI. SIMPLE ALL-OVER PATTERNS

"FREE design" is used again in this lesson, but this time a simple dotted geometric framework helps to preserve a suitable spacing, the dot represents any convenient point in the unit It need not be used as the exact centre of the unit, but as a convenient point from which to start constructing the design. In the pattern at the top of the sampler the dot *has* been used as the exact centre, but in the second pattern it is used to mark the position of the bottom of the middle stitch in the first row of "lazy daisy," that is, the row above the buttonholing that represents the flower pot.

SAMPLER SHOWING SIMPLE ALL-OVER PATTERNS

It is necessary to decide on the unit that the worker is going to use before the dotted framework is drawn up, as the distance between the dots is decided by the size of the unit as well as by the size and shape of the article which is to be decorated. When these decisions have been reached a piece of squared paper is dotted at regular intervals, this piece of paper is placed over the material to be decorated and the dots are then traced on by the use of carbon paper and a hard pencil

The two stitches used in the hat band in the previous year's work have been employed again,—buttonholing and tack stitches for the centres of the round and sprig flowers For the calyxes of the sprig flowers the stitch "lazy daisy" is used.

Whether the decoration will be executed in cotton or wool, as well as the thickness of these, is decided by the material and the article to be decorated The sampler illustrated here is worked with a coarse embroidery cotton on a heavy, loosely woven linen. Sampler practice will prove necessary for several reasons: firstly, for the composition of a number of units from which to choose one to repeat as an all-over pattern; secondly, to decide which part of the unit is to be placed on the traced dot; and thirdly, for planning out the best order for putting in the necessary stitches that make up the unit, so as to avoid unnecessary joins and the retracing of steps This last type of work is apt to become bulky and untidy at the back from its very nature, unless this point is watched with special care. The sampler illustrated in Fig I shows the order of working the two patterns; the last dot is left unworked so as to show its position with regard to the worked unit.

Many articles in considerable variety can be beautified by this style of decoration. Pockets, tray cloths, runners and bags may

be treated in this way; dresses and aprons can also be embroidered However, to-day we lack the time to cover dresses with the amount of embroidery that went to the embellishment of Elizabethan costumes, nor can many of us aspire to the amount of work seen on the aprons of Queen Anne's day, yet by spacing units more widely or by embroidering only certain parts of frocks we may add considerably to the pleasing appearance and colour of our everyday surroundings as well as to our own enjoyment in craftsmanship

Time According to the article to be made.

VII. A TRAY CLOTH WITH APPLIQUÉ DECORATION

APPLIQUÉ is a very fascinating form of decoration. Large areas can be covered by the application of pieces of material that give an effect of even colour different from any effect that can be gained by covering the same spaces with filling stitches. Many very beautiful pieces of historic applied work exist, but the modern counterpart is mostly composed of different materials from those used by our ancestors. The most beautiful and luxurious materials were used in olden times, but the purse of the worker of to-day forces her to use less costly materials, the purposes for which the work is intended are very different, while the time available for doing the work is much more limited. As a result, modern work differs in character from the sumptuous, time-consuming work of bygone days, it differs also in the fact that some of the old work was executed by men and that modern work is not so difficult of execution as the old Nevertheless, the work of to-day, with its clear strong lines and colour is in keeping with the architecture and furniture of our time, much of which is geometric in character.

A TRAY CLOTH WITH APPLIQUÉ DECORATION (FIG 1)

Designs for appliqué work should be worked out on squared paper, the colours to be employed should be indicated and the design then used as a working drawing Fig 2 shows the design used for the tray cloth prepared in this manner. Designs using rectangular forms are much easier to work than those using figures with curved and sloping sides The threads along the sides of rectangular figures are a help to the beginner where buttonholing should be kept regular.

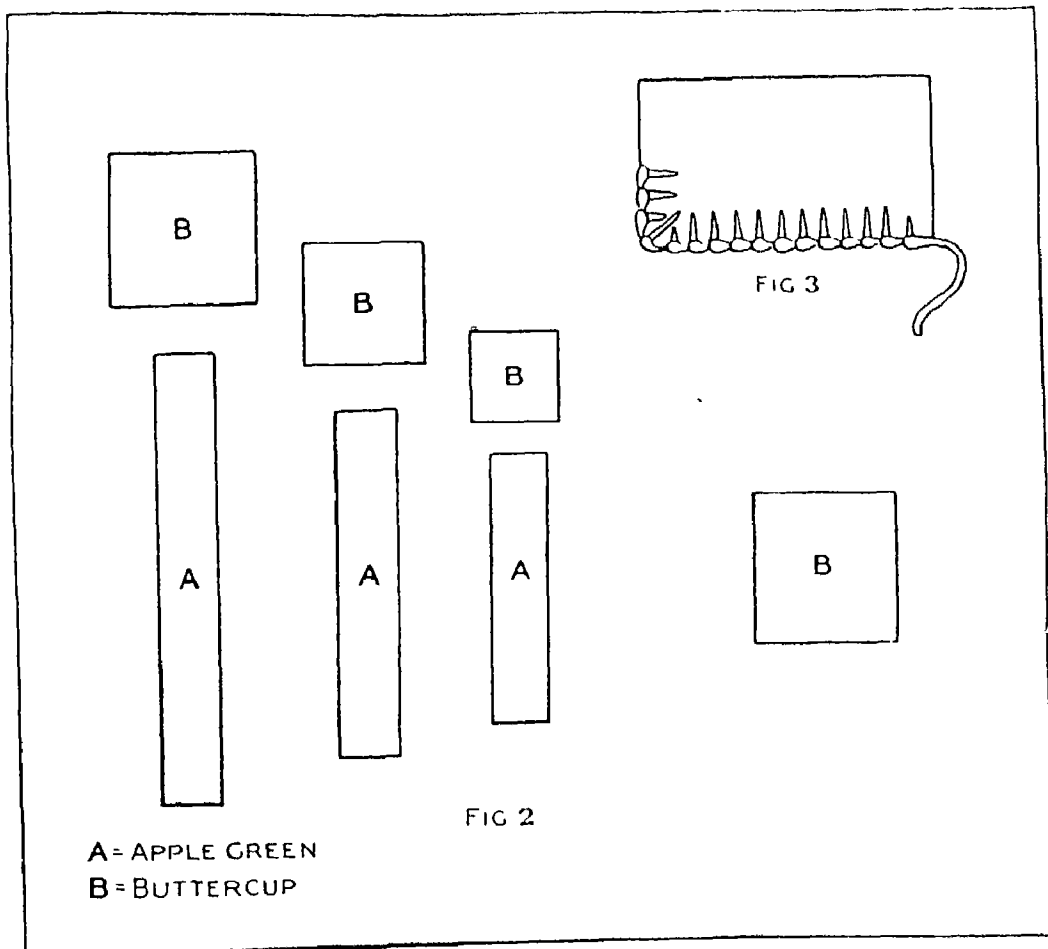
One addition is required for the tool pochette:

No. 7 needles for hemstitching.

The following classroom tools and materials are needed:

Linen, crash or some similar material
Pieces of coloured linen
D.M C stranded cottons in colours to match the coloured linens
D M C. sewing cotton to match the material of the tray cloth.
Tacking cotton
Large cutting-out scissors.
Starch
Hot water
Flat hog-hair brush.
Used carbon paper
Squared paper.
Pencils, 4 H for tracing, and HB.

The tray cloth illustrated in Fig 1 is made from a piece of natural linen measuring 20½ in. by 13½ in , the appliqué is done in apple green and buttercup linen and these are buttonholed with cotton exactly matching them in colour

The threads for hemstitching are drawn 2 in in from the edge of the material. Hemstitching the towel and the runner did not involve corners, and corners need careful

APPLIQUÉ DESIGN USED FOR TRAY CLOTH

handling. The threads have not been drawn completely across the material, each thread being cut 2 inches from the edge. The threads can be drawn right across the material, but the extra number of threads produced by folding up the hem makes hemstitching more difficult and the weakness caused by threads drawn through the hem is apt to result in a poorly-shaped cloth. In some materials there is a difference in the thickness of warp and weft threads, in which case the number of threads drawn on the sides at right angles to one another will vary in order to make the drawn space of even size all round the cloth. An easy way of judging whether the drawn space is the same width on both sides is to see whether the little hole at the corner is quite square. In the article illustrated in Fig. 1 four weft threads were drawn and only three warp threads to get an even space for hemstitching

The decoration of the tray cloth is not started until the hemstitching is quite finished and the tackings have been removed. The corners are finished by slip stitching and top-sewing open edges in the usual manner and by buttonholing the small space where threads have been cut for drawing. The design is traced on the cloth with used carbon paper, using a *hard* pencil; the straight lines in the design should be ruled.

Care must be taken that the design is placed on the tray cloth quite straight and in the desired position. The individual parts of the design are not traced on the coloured linens if the forms used are rectangular A thread is drawn to get a straight line, and additional threads are drawn in the required directions to form the shape. The piece is then cut out along the drawn threads. When the pieces are cut out it is very important that the piece of material to be applied and the background material both lie the same way of the stuff; if one piece is on the bias, the top piece will not lie flat

The pieces of coloured linen are then pasted on to their corresponding places on the design traced on the tray cloth, and ironed on first from the wrong and then from the right side. The paste used is ordinary boiled starch made in the proportions of half a teaspoonful of starch to half a tea-cupful of boiling water. A flat brush is best for applying the starch to the tracing on the tray cloth because it allows a better control of the edges Practice and individual ability will determine how many pieces it is wise to paste on at once, one would seem sufficient for the beginner, otherwise, while one piece is being worked the remainder will become frayed or rub off altogether

The applied pieces are buttonholed on with cotton that exactly matches them in colour. The stitching is not used for decorative purposes, but for attaching the applied pieces to the background. The stitches should, therefore, not attract notice, but should sink into the material itself. The most suitable cotton for this purpose is D M C stranded cotton It is a cotton that has not been used in previous lessons. As the cotton comes from the maker each piece consists of six fine threads; to avoid bulk, only three of these are used for stitching. A No. 5 or No 6 sewing needle is used for the buttonholing, and a finer one, No. 7, for the hem stitchery. The buttonhole stitches must be neither too small nor too closely packed together although they should lie evenly side by side. If these two points are not kept in mind, ridges will appear as in scalloping; also, in this case, the applied material would be liable to fray away in use. The buttonholing should be kept straight by a thread and the corners need special care so as to preserve their shape and be neat and strong For the method used in working corners see Fig. 3 Threads are started by a few running stitches in the background material close to the applied piece; they are finished off by making a few running stitches through the back of the buttonholing already done

The tray cloth is finished when it has been pressed.

Time · 6 periods.

VIII. A DECORATED BOOK CARRIER

"Oh, bury me in books when I am dead,
Fair quarto leaves of ivory and gold,
And silk octavos, bound in brown and red,
That tales of love and chivalry unfold.

"Heap me in volumes of fine vellum wrought,
Creamed with the close content of silent speech,
Wrap me in sapphire tapestries of thought
From some old epic out of common reach."

THUS sings the poetess under the steady blue skies of the Southern Cross, and takes us back to mediaeval times—the age of chivalry and religious enthusiasm. We see the rooms hung with tapestry, the embroidered banners at jousts and in battle; the monks poring over their illuminated manuscripts. The world would indeed be a dull place without the silent companionship of books, records of the storied past, the trembling present and the possibilities of the future.

A decorated book carrier is illustrated in Fig. 1, this is a useful article that can accompany its owner on holidays, on rambles, or, later, to work. The book it encloses will be easier to carry and will not be harmed by its travels; nothing is so distasteful to a book lover as the sight of a book that has been ill-treated, while the well-worn cover of an old friend rouses pleasant memories of days that are gone.

There are no additions required for the tool pochette.

The following classroom tools and materials are required:

Coloured hessian.
D M C. *coton perle* No. 16, in colours to match the hessian.
Tapestry wools in clear colours.
Large cutting-out scissors.
Tacking cotton.
Squared paper.
Pencils, HB and 3 H.
Rulers.
Compasses
Fresh carbon paper

The book carrier illustrated in Fig. 1 is made from a piece of brown hessian 18¼ in. by 10½ in. When finished it fits over an ordinary sized novel, at the same time, a smaller book is quite safe when carried in it. The safety of the smaller book depends on enough material being turned in to form the flaps at each end The design is worked with Pearsall's tapestry wools, red No. 4, green No 10, blue No 78 and yellow No 114.

DECORATED BOOK CARRIER (FIG 1)

The ordinary sewing stitches are done in *coton perle*, Col. No. 801, which exactly matches the hessian. Medium sized needles, similar to those used for coiled basketry are used for the embroidery and a No. 5 or No. 6 sewing needle for the ordinary sewing stitches.

Fig 2 shows the design used on the carrier illustrated in Fig. 1, with the colours marked on it.

A single hem $\frac{3}{8}$ in. wide is turned down across the short ends of the material and herringboned into place with *coton perle* On the two long sides a single hem $1\frac{1}{4}$ in wide is turned down and herringboned, this hem is wider to prevent the end of the hem coinciding with the place where the edge of the book might come when the carrier is in use, thereby chafing the edges and corners of the book

The carrier is decorated as soon as the four hems are finished. The design is traced on to the material $3\frac{1}{4}$ in. in from each short end with fresh carbon paper and a hard pencil. Fresh carbon paper is necessary in this case as hessian does not take a tracing easily Whether both sides of the carrier are decorated is a matter of taste and time. The decoration is executed in split stitch which was illustrated in Lesson V.

The straps for carrying are made from a piece of material $2\frac{1}{2}$ in. by 50 in. The ends of the strip are joined and $\frac{1}{4}$ in. turned in on the two long sides; the strip is then folded together and slip stitched The strip is slip stitched on to the cover 1 in. from the edges of the long sides; $2\frac{3}{4}$ in. from each of the short ends of the carrier the slip stitching of the strap stops, as this piece is turned in for $2\frac{3}{4}$ in. to hold the book in place. When the decoration is finished and the straps are on, the carrier should be pressed from the back to make all the hems lie as flat as possible. A piece of hessian $2\frac{3}{4}$ in. wide is then turned down at each short end and the edges of the folds are top-sewn, working from the bend of the fold inward, the finished carrier will then measure $12\frac{1}{4}$ in. Figures 2 and 3 suggest two other designs which could be used. The dotted lines in Fig 4 are the construction lines.

Time: 6 to 8 periods.

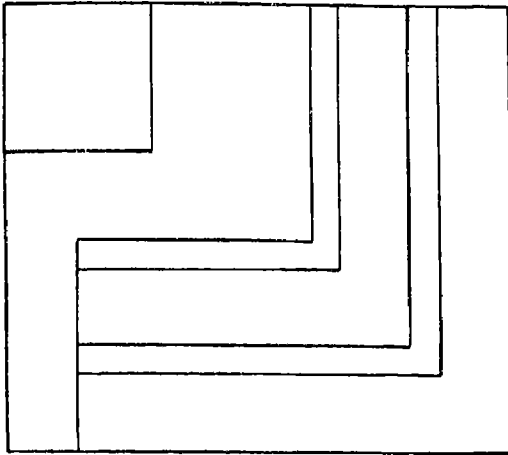
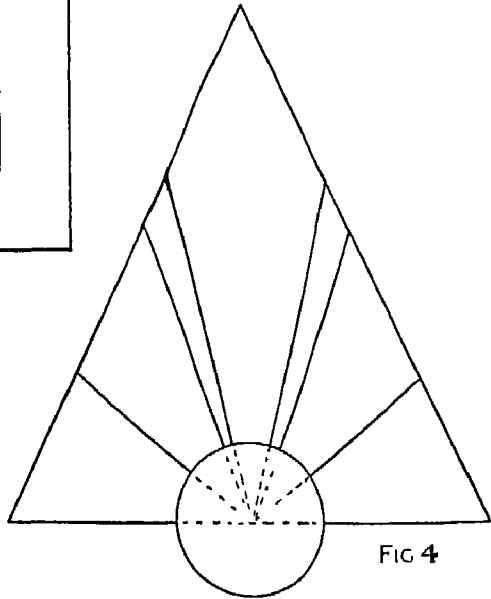
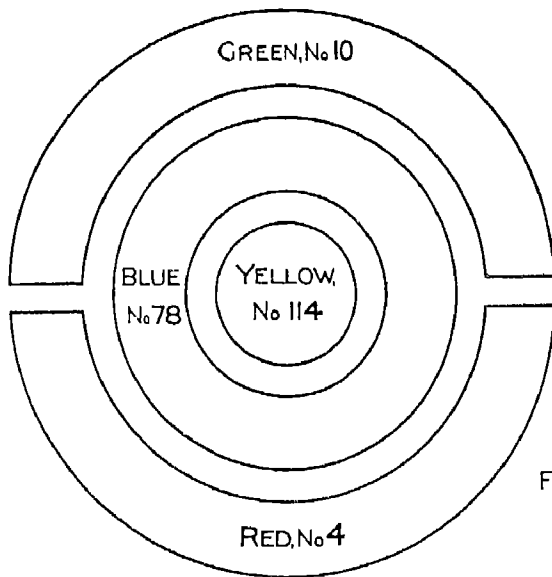
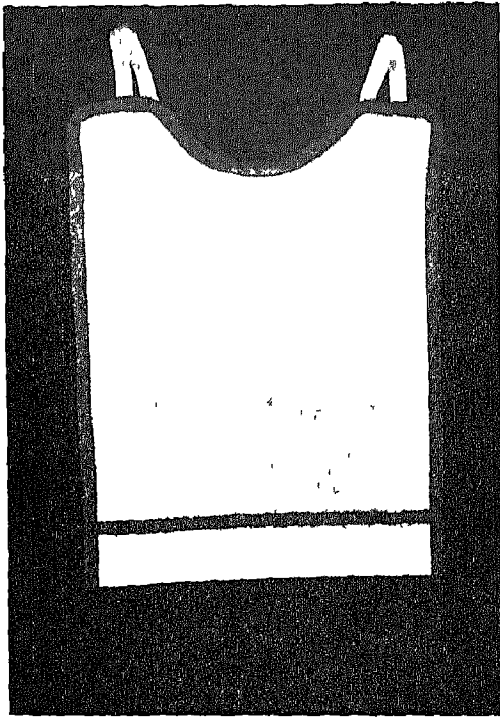
IX. A FEEDER DECORATED WITH NEEDLE WEAVING

THE stitches used in this lesson are all stitches that have been dealt with in earlier lessons. The binding of the sides and top of the feeder (which are vital parts of the decoration) is new, and may possibly prove a little difficult for young fingers.

Many patterns for needle weaving exist, some of them very intricate, these need careful working out for the best method of weaving in the different colours The plate p. 687 shows some simple patterns that could be executed by young workers. One colour is easier to use than two and is quite enough for beginners, although all the patterns given lend themselves to a two colour treatment

Making up needle weaving patterns is a very interesting occupation, the patterns grow under the needle and often give quite unexpected results, although it is somewhat disappointing to discover that a pattern one imagines to be one's own invention is only the re-discovery of a pattern that a little research will reveal in work that is centuries old.

The needle weaving used in this lesson is finer than that used on the hessian runner, the cotton is softer and finer and so gives a more delicate result.

DESIGNS FOR A DECORATED BOOK CARRIER

FEEDER DECORATED WITH NEEDLE WEAVING

One addition is needed for the tool pochette:

A sampler on which to build needle weaving patterns.

The following classroom tools and materials will be required:

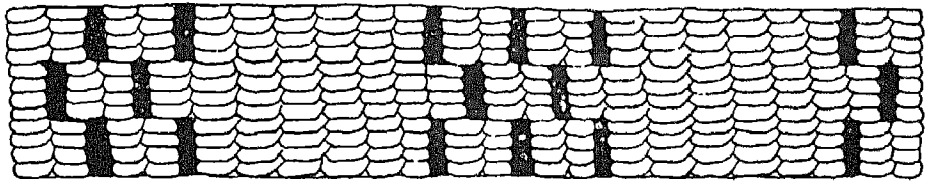
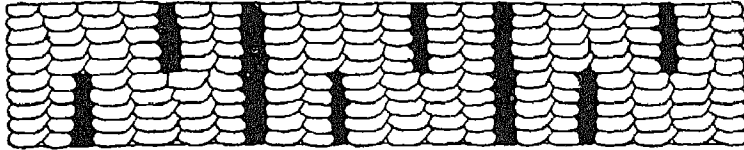
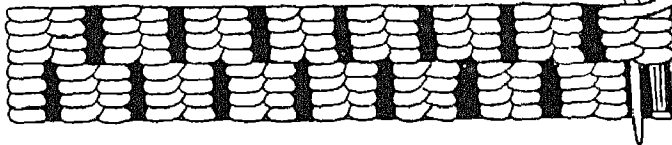
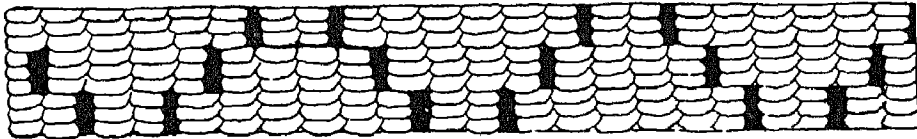
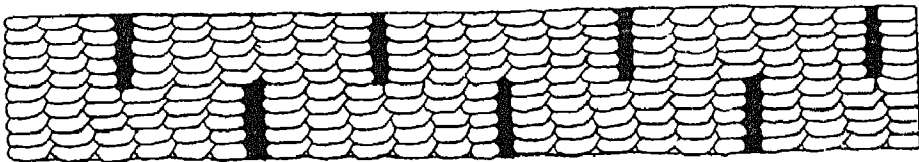
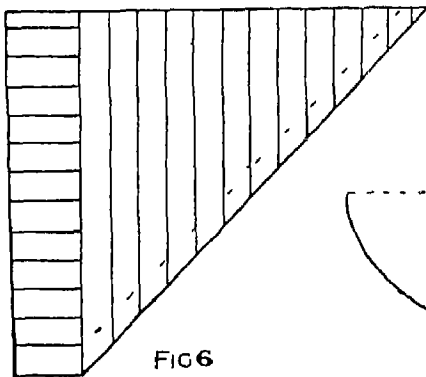
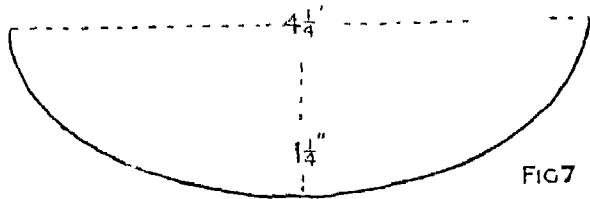
Thick white huckaback
White tape, ⅜ in. wide.
Coloured linen for binding.
No. 6 *coton à broder* in soft, clear colours.
Large cutting-out scissors.
Tacking cotton.
D.M.C sewing cotton to match the linen.

Huckaback used for making feeders must be thick so as to be absorbent, otherwise the feeder will fail in its purpose.

The feeder illustrated above measures 12 in by 9 in. before the hem is turned up. If the material used is 24 in wide, two feeders can be cut across ½ yd. of huckaback; material 36 in. wide would cut equally economically, but most other widths will cause waste

The hem is turned up first; 12 threads are drawn 2½ in. from the selvedge edge of the material, and the hem is then tacked in place; the selvedge is not turned in. The hem is next hemstitched with white cotton by the same method as that used for the hessian runner; but instead of hemstitching in bundles of three threads (as in the former lesson), the natural divisions that occur in the huckaback are picked up as one needleful, as explained in Lesson III for the decorated guest towel. Only the hem side of the drawn threads need be hemstitched.

The needle weaving is executed as soon as the hem stitching is finished This is done in the same way as on the runner, with the difference that in the pattern used in Fig. 1 the weaving thread ends at the top of the pattern and is carried straight down the back of the finished block, making a perpendicular thread at the back; see Fig. 3 on the plate. This is also the pattern used on the feeder illustrated.

The neck is cut out when the needle weaving is finished. The measurements for the neck are illustrated in Fig. 7. Cutting material on the cross is also illustrated in Fig 6. The linen for binding must be absolutely on the cross or the neck of the feeder will be clumsy and uncomfortable to wear. If the binding has to be joined, equal care must be taken that the joins are made on the *straight* of the material. Bindings should be cut ⅞ in. wide; the width required should be measured in at right angles from the bias edge of the material, as illustrated in Fig. 6, and then be cut by these marks Small scissors will *not* cut good bindings. The binding is tacked round the feeder, stretching the binding slightly at the corners and the neck; keeping the corners square is unnecessary except at the hem; squaring the other corners will

FIGS 1, 2, 3, 4 and 5, PATTERNS OF NEEDLE WEAVING
FIG 6, CUTTING MATERIAL ON THE CROSS
FIG 7, MEASUREMENTS FOR THE NECK OF THE FEEDER

make them bulky At the start and finish of the binding, ½ in. is turned in The tacking should be ⅜ in from the edge of the binding and from the edge of the feeder; these two edges should fall on each other The binding should then be run on with small stitches and an occasional back stitch. These stitches should fall *on* the line of the tacking Machining the first stitching of the binding is much more satisfactory than hand sewing where children are able to use a sewing machine, but machining the corners and the neck is not easy. When the stitching is finished the tacking should be *cut* out, the binding turned over and slip stitched into place *by hand*. The ends of the binding are top-sewn to make them tidy

Two tapes ⅜ in. wide, and 13 in long are sewn on at the neck. The tapes are finished off with little hems and are sewn at the ends. After this it only remains to press the feeder.

Time 6 to 8 periods.